

Speech and language delay in childhood: a retrospective chart review*

Ahmet Yasin¹, Hatice Aksu¹, Erdoğan Özgür², Börte Gürbüz Özgür¹

¹Department of Child and Adolescent Psychiatry, Faculty of Medicine, Adnan Menderes University, Aydın, Turkey

²Otorhinolaryngology Clinic, Bigadiç State Hospital, Balıkesir, Turkey

Abstract

Objective: Speech delay should be considered in a child in case of not demonstrating the stages of language development in accordance with general developmental period or compared to the peers. Speech delay often may be a sign of a variety of mental and somatic diseases rather than a diagnosis. In this study, we aimed to investigate the demographic characteristics, psychiatric diagnoses and factors that play a role in speech delay in patients admitted to a child psychiatry outpatient clinic with a complaint of speech delay.

Methods: Medical records of the patients who were admitted to the child and adolescent psychiatry outpatient clinic with complaints of “not talking”, “speech delay”, “language delay”, “not forming a sentence” between November 1, 2014 and October 31, 2015 were retrospectively evaluated.

Results: Of a total of 127 cases, 22.8% were female and 77.2% were male. The mean age was determined as 3.1±1.1. Average duration of TV, tablet and smart phone exposure was 5.3±3.4 hours per day. Only 14.1% of cases were going to preschool education, primary school or special education. It was found that 38.2% were not presence in an environment where allows peer relationship; bilingualism history was present in 3.1%; 23.6% had a family history of speech delay, and 21.6% of cases had no meaningful words. Developmental language delay (28.18%) as a clinical finding and pervasive developmental disorders (PDD) as a psychiatric disorder (23.64%) were the most frequent diagnoses. There were no statistically significant differences between PDD and other patients when compared in terms of TV and other virtual media exposure duration [t(55)=1.58, p=0.12].

Conclusion: Different diagnoses lie under the complaint of speech delay. We emphasize that it is important to evaluate these patients multidisciplinary and refer to child and adolescent mental health experts for detection of probable psychopathology and establishing the appropriate treatment plan at an early stage.

Keywords: Child development disorders, pervasive, language development disorders, child psychiatry, mental disorders diagnosed in childhood, television.

Özet: Çocukluk çağında konuşma ve dil gecikmesi: Geriyeye dönük dosya taraması

Amaç: Çocuğun gelişim dönemine paralel bir şekilde dil gelişim safhalarını göstermemesi ya da konuşmasının yaşitlarına göre geride kalması durumunda konuşma gecikmesi düşünülmelidir. Konuşma gecikmesi bir tanıdan ziyade sıklıkla çeşitli mental ve somatik hastalıkların bir belirtisi olabilir. Bu çalışmada konuşma gecikmesi şikayeti ile çocuk psikiyatrisi polikliniğine başvuran olguların sosyodemografik özellikleri, psikiyatrik tanıları ve konuşma gecikmesinde rolü olan faktörlerin incelenmesi amaçlandı.

Yöntem: 1 Kasım 2014 – 31 Ekim 2015 tarihleri arasındaki bir yıllık dönemde Çocuk ve Ergen Ruh Sağlığı ve Hastalıkları Polikliniğine “konuşmama”, “konuşma gecikmesi”, “konuşmada gecikme”, “cümle kuramama” şikayetleri ile başvuran olguların dosyası geriye dönük olarak değerlendirildi.

Bulgular: Toplam 127 olgunun %22.8'i kız, %77.2'si erkek, olguların ortalama yaşı 3.1±1.1 idi. Ortalama TV, tablet ve telefona maruziyet süresi günde 5.3±3.4 saattir. Okul öncesi eğitime, ilkökula ya da özel eğitime yalnızca %14.1 olgu gidiyordu. Yaşit ilişkileri sağlayabileceği ortamlarda %38.2 olgunun bulunmadığı, %3.1 olguda çift dillilik olduğu, %23.6 olgunun aile öyküsünde geç konuşmanın olduğu ve %21.6'sının hiç anlamlı kelimesinin olmadığı saptandı. En sık saptanan klinik bulgunun gelişimsel konuşma gecikmesi (%28.18); en sık saptanan psikiyatrik tanının ise yaygın gelişimsel bozukluk (%23.64) olduğu tespit edildi. Yaygın gelişimsel bozukluk tanısı olan olgular ile diğer tüm olgular karşılaştırıldığında TV ve diğer görsel medya türlerine maruziyet açısından gruplar aralarında istatistiksel olarak anlamlı fark saptanmadı [t(55)=1.58, p=0.12].

Sonuç: Konuşma gecikmesi şikayetinin altından farklı tanımlar çıkabilmektedir. Bu olguların erken dönemde multidisipliner olarak değerlendirilip olası psikopatolojilerin saptanması ve uygun tedavi planının oluşturulması için çocuk ve ergen ruh sağlığı ve hastalıkları uzmanları tarafından değerlendirilmesinin önemli olacağını vurgulamaktayız.

Anahtar sözcükler: Çocuk gelişimi bozuklukları, yaygın, dil yeteneğinde gelişim kusurları, çocuk psikiyatrisi, çocukluk çağında tanısı konulan akıl hastalıkları, televizyon.

Correspondence: Erdoğan Özgür. Çavuş Gazi Bulvarı, No: 4, 10440 Bigadiç, Balıkesir, Turkey.
e-mail: drerdoganozgur@gmail.com

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Speech is a valid conventional communication method, an action in which language is expressed with verbal symbols of the language.^[1] In parallel with the developmental stage of the child, when he/she is unable to demonstrate phases of language development when compared with his/her peers we speak of speech delay. Detailed evaluation should be performed if the baby (a) does not babble till the first 12 months after birth, (b) does not understand simple directions till 18 months of his/her life; (c) does not speak up to 2 years after birth; (d) does not construct sentences till 3 years of age, and (e) feels very hard to narrate simple stories at 4–5 years of age.^[2]

Speech delay can frequently be a manifestation of mental and somatic diseases rather than a diagnosis. In children, it is difficult to estimate the exact prevalence of speech delay because of methodologic differences. In investigations performed in preschool children, speech disorders have been reported at an incidence of 3–15 percent.^[3–6] In an incidence study performed in the United States of America, speech delay among children aged six years was indicated at 3.8%, being 1.5-fold more frequently observed in male children. However, comorbidities as speech disorder and speech delay were reported in 1.3% of children.^[7] In the literature, mental retardation, hearing loss, language development delay, verbal incoherency, autism spectrum disorder (OSD), bilingualism, and deficiency of psychosocial stimuli have frequently been held responsible for speech delay.^[2] Harrison et al. indicated that risk factors for speech and language disorder among children aged between four and five years include male gender, hearing loss, and having a more reactive mood. On the other hand, stubborn and assertive mood and good nature of the mother were reported as protective factors.^[8] A study which investigated the impact of exposures to virtual technologies (television, computer, tablet, smart phone, etc.) on speech, and communication skills during early childhood revealed the presence of a correlation between speech delay and watching TV for more than two hours in children aged one to three years.^[9]

In the present study, we investigated the psychiatric diagnosis associated with complaints of speech delay in children and potential etiologies involved.

Materials and Methods

Approval of the Adnan Menderes University Ethics Committee of Non-invasive Interventions was obtained for the study (2016/828). Hundred and twenty-seven children who were referred to the Department of Mental Health and Diseases of Children and Adolescents during

the time interval between November 1, 2014 and October 31, 2015 with the complaints of “inability to talk”, “speech delay”, inability to form sentences” were retrospectively evaluated. During evaluation process of the children, consultation from a pediatric neurologist, ENT specialist, and head and neck surgery was requested when other routine possible causes of speech delay, and phonologic disorder were suspected (hearing loss, lingual frenulum, cerebral palsy, genetic diseases etc.). Psychiatric diagnoses were made based on the diagnostic criteria of DSM-IV-TR (Diagnostic and Statistical Manual of Mental Disorders, 4th ed.).^[10] Sociodemographic data of the cases, factors affecting speech delay, and distribution of psychiatric diagnoses were analyzed. Variables investigated included mean daily exposures to television, tablet, computer and smartphone, spending time with peers, attendance to preschool education, bilingualism, and the number of siblings at home.

Statistical analysis

SPSS 17.00 software package for Windows (SPSS Inc., Chicago, IL, USA) was used for the analysis of data.^[11] Descriptive data were expressed as mean, standard deviation, and percentage (%). Fitness for normal distribution was evaluated using Kolmogorov-Smirnov test. Student t test was used as a parametric test. For the comparison of categorical variables chi-square test was used.

Results

Hundred and twenty-seven cases (female: n=29, 22.8%, and male: n=98, 77.2%) were enrolled in the study. The mean age of the cases was 3.1±1.1 (range: 1 to 7) years. Mean ages of the girls and boys were 3.2±1.1 and 3.1±1.1 years, respectively. Mean age of girls and boys did not differ [t(125)=0.40, p=0.68]. The patients had an average of 1.1±0.9 siblings. Mean ages of the mothers and fathers were 30.6±5.3 and 35.4±5.7 years, respectively. Analysis of sociodemographic characteristics of the parents demonstrated that mothers were primary school (31.7%), secondary school (17.5%), high school (24.6%), and university (17.5%) graduates. However, fathers were primary school (34.7%), secondary school (15.3%), high school (27.4%), and university (21%) graduates. Most (80.3%) of the mothers were jobless/housewives, while 91.3% of fathers had a job. Parents of some (14.3%) patients' were consanguineously married.

Mean daily exposure time to TV, tablet and phone which might be related to speech delay was estimated as

5.3±3.4 hours. Only 14.1% of the cases had received pre-school, primary or private education. Based on the data obtained, 23.6% of the cases with speech delay had a family history of speech delay, besides it was learned that 38.2% of the children had not engaged in activities where they could develop a relationship with their peers. Bilingualism was detected in 3.1% of the cases.

It has been found that 21.6% of all cases (mean age 34.8±12 months) with speech delay could utter only meaningless words, and diagnosis of pervasive developmental disorder (PDD) was established in 40.7% of the cases. The etiology of speech delay was still being evaluated in 31.5% (n=17) of the cases. Distribution of psychiatric diagnoses of 110 patients whose evaluation process was completed as follows: PDD, 23.64%; phonologic disorder, 10%, mental retardation, 5.5%, and normal psychomotor development, 9.1% (Fig. 1). In addition, as clinical findings, developmental speech delay was found in 28.18% of the cases and deficient stimuli in 16.36% of the cases. A statistically significant difference was not detected between male and female patients (p>0.05, chi-square test) (Fig. 2). A statistically significant intergroup difference was not detected between cases with pervasive developmental disorder and all other cases as for television exposure [t(55)=1.58, p=0.12].

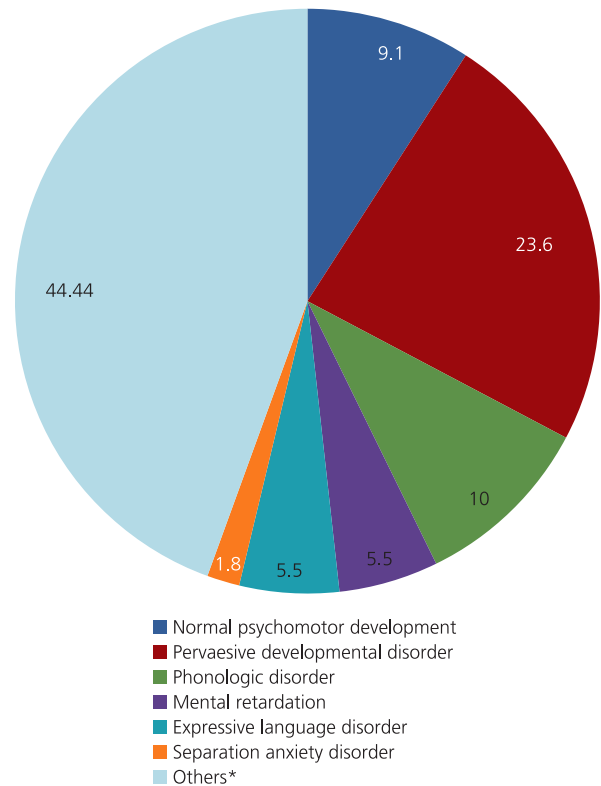


Fig. 1. Distribution of psychiatric diagnoses of the cases (%). *Language development delay, lack of stimuli.

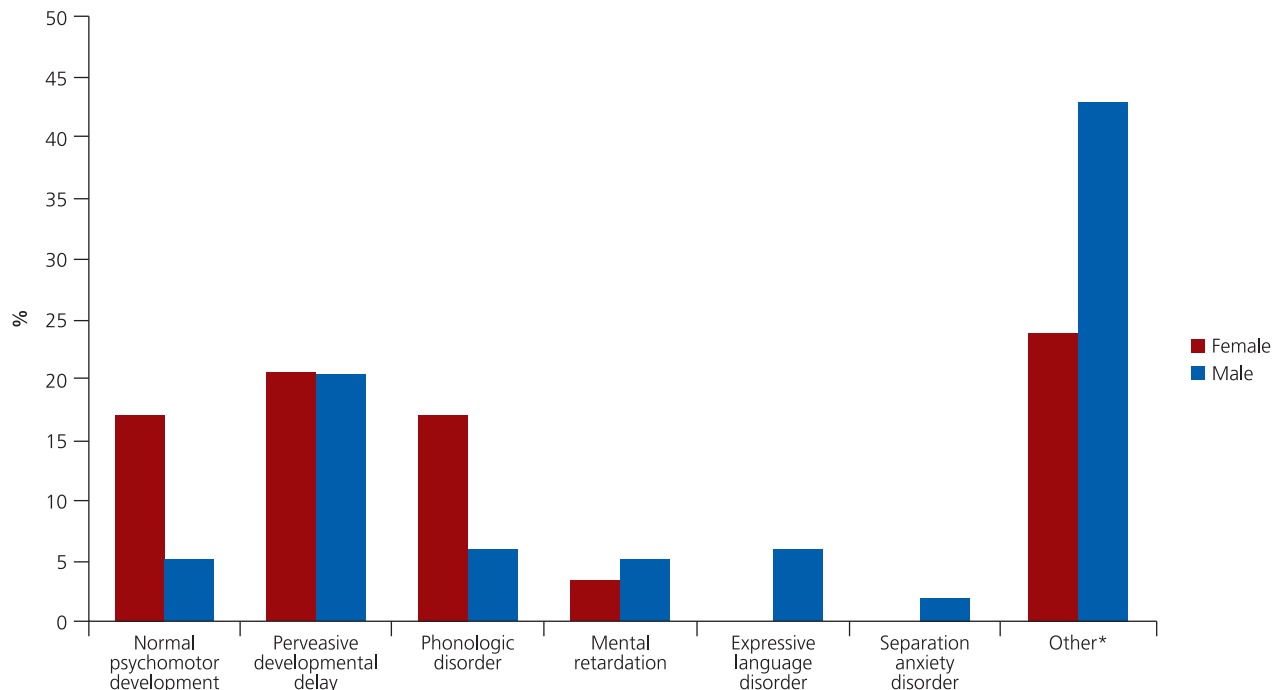


Fig. 2. Distortion of cases according to their diagnoses. *Developmental speech delay, lack of stimuli.

Discussion

It has been known that mental diseases seen during childhood are more frequently observed in male children.^[12] Uçar et al. reported that 70.7% of the cases who presented with a complaint of speech delay constituted of male children.^[13] Similarly, as reported in another study, most of the cases presented to the outpatient clinics with complaints of speech delay comprised of male patients.^[14] Also in our study, 77.2 % of the patients who presented with a complaint of speech delay consisted of male, and 22.8% of them comprised of female patients. Since general opinions and beliefs which can be stated as “he/she speaks anyhow”, “his/her father/uncle also had a speech delay” still prevail in our country, parents may seek medical help at a later stage when compared to developed countries. Thoughts favoring spontaneous resolution of speech delay may decrease the favorable effects of early treatment, and prolong the duration of treatment whereas mean ages of male, and female children at admission were comparable in our study.

In a study, 5-year-old children were followed up for 6 months without treatment, and 6 months later speech delay was still maintained in 54% of the cases,^[15] while in another study speech disorder was found to remain in 22% of the cases at the end of 5 years of follow-up without treatment.^[16] These outcomes may be considered as absolute indications of intervention. Besides in cases with observed speech delay, the risk of encountering speech disorders during school age also increases.^[17,18] When cases presenting with speech, and language development delay were followed up for longer periods, and compared with their peers without speech and language development delay, the achievements of the first group were inferior to the healthy group as for vocabulary and forming grammatically correct sentences.^[19,20] Speech delay encountered during early childhood may manifest at low levels of academic performance later on.^[21] Literature information indicates that treatment of speech delay at an early stage and raising awareness of early referral are important for preventive mental health in the long-term.

Literature offers evidence indicating virtual exposure as one of the causative factors playing a role delay in stages of language and speech development. It has been reported that speech delay is more frequently encountered in children grown up by passing time with electronic media such as watching television, chatting on the phone, surfing on tablet, and internet because of limited time span they spent for interactive communication with their peers and families.^[22] American Academy of Pediatrics does not recommend television watching for children younger than two

years of age.^[23] In a study performed by Akkuş et al. which was based on feedbacks of the parents of the children aged between 3, and 60 months, 21.2% of the children did not watch TV, while 31% and 47.7% of the children watched TV nearly 2 and more than 2 hours a day, respectively. Among children aged less than 2 years for whom television watching is more objectionable, daily television exposure time was reportedly nearly 1.05 hours, while for children aged 25–60 months it was approximately 2.9 hours. Besides, it was learned in the same study that even during play hours of more than half of the children, TVs were left open.^[24] In a study performed by Öztürk et al. with families of the children aged 3–6 years, they reported more than 2 hours of television exposure in nearly half of their children.^[25] In various studies performed in our country, weekly TV exposure times were indicated to range between 12.5 and 16 hours.^[26–28] In a study performed abroad, similar results were reported.^[29] However, in our study mean daily virtual exposure time was found as 5.3±3.4 hours. When compared with other studies, virtual exposure times were apparently 3–4-times longer in our study. Since our study did not contain a control group without speech delay, the impact of these data obtained on speech delay cannot be interpreted precisely. However, when compared with the rates reported in previous studies, detection of 3–4-fold longer exposure times is important complementary information. In addition to unfavorable effects of television, and virtual exposure, possibly children are adversely affected by TV programs and series not appropriately designed for them. It has been suggested that adverse outcomes can be encountered more frequently in line with longer periods of unfavorable virtual exposure.^[30]

According to Piaget, maturation of the brain and cognitive processes are maintained in direct proportion to the individual's adaptation ability to environmental conditions.^[31] When developmental stages of the children are taken into consideration, children cannot evaluate stimuli the same way as adults when they are exposed to TV or other areas of media. Since they cannot clearly differentiate fiction from fact, they are vulnerable to these adverse effects.^[32] Besides, commercials and fragments passing swiftly in front of their eyes may encourage the children making rapid changes between images. Consequently, the children can not elaborate these images, and they form inaccurate, risky, and unstructured schematizations. Besides, their attention spans may not gain continuity, and their integrity may be broken in pieces. In all these times, the child will not be able to attach meaning to TV programs, and consequently, he/she cannot create something new, and surrender completely to TV programs. Therefore, the children will not

associate the things they have seen on TV with the real world, and remain in a passive mood.^[33] False models, which adversely affect children who are vulnerable to these exposures, make them build their development on an unhealthy basis and constitute an open risk for a healthy adulthood in the forthcoming years.^[34] Literature reviews have revealed that uncontrolled periods of TV watching in small children result in a risk for TV dependency when they reach school age. In addition, passing the stage of play which is one of the most important developmental stages of the childhood, in front of TV or using electronic instruments for longer periods of time increases the risk of encountering developmental delays in the years to come. These exposures increase the rate of observing adversities in personal and social communication-language skills.^[23,26] In the light of all this information, we think that 3–4-fold longer exposure to TV, and virtual media during the preschool period is a matter of concern regarding the mental health of these cases during childhood and adolescence.

According to 2014–2015 data of The Turkish Statistical Institute, the rate of schooling in all over Turkey among children aged 3–5 years was 33%, while in Aydın province it was reported as nearly 40 percent.^[35] Only 14.1% of the cases included in our study received preschool and/or private education which was nearly 3-fold below of the general statistical rates. Implementation of preschool education during early childhood is thought to exert favorable effects on the language and social development of the children. In our cases, schooling rate below our average provincial education level, limited play grounds or other recreational areas (only 38.2%) where the children can actively engage in interaction with their peers (38.2%) result in a vicious circle of virtual exposure.

Familial factors are thought to play important roles in speech delay. Tomblin et al. reported a 21% increase in the risk of the first-degree relatives.^[36] Also in our study, in compliance with the literature in 23.6% of the cases presented with speech delay, relevant familial history was detected.

When literature data were reviewed, bilingualism was also found among causes of speech delay. In 3.1% of our study population, bilingualism was detected. In households where two languages are spoken simultaneously, the delay may occur in speaking two languages.^[1] It has been suggested that bilingual children can use both languages effectively generally when they reach to 5 years of age.^[37,38]

We could not encounter any descriptive study in the literature which analyzed distribution of psychiatric diagnoses, sociodemographic characteristics, and virtual (TV) exposure

in children with speech delay in children in our country. Therefore, this study is the first of its kind. Only 23.64% of the cases included in our study were diagnosed as PDD. In a study performed by Akın Sarı, the authors indicated that 8.5% of the cases referred to the outpatient clinics of pediatric psychiatry because of speech delay was diagnosed as “not otherwise specified-Pervasive Developmental Disorder and Autism”.^[39] We think that higher rates in our region stemmed from the evaluation of the cases in a tertiary health-care center. On the other hand, within the concept of Project of Early Diagnosis of Autism implemented by Ministry of Health, Directorate of Public Health in the Aydın Province, the awareness of primary care physicians has been raised about speech delay which might have an impact on families' referrals to our outpatient clinic.^[40] Since only 9.1% of the patients presented with speech delay, and language development delay was detected in 28.18% of them, earlier diagnosis of underlying causes conveys importance.

Conclusion

In conclusion, different diagnoses can cause a complaint of speech delay. We emphasize that it is important to evaluate these cases by a multidisciplinary team including pediatric and adolescent psychiatrists at an early stage, so as to identify potential psychopathologies and formulate an appropriate treatment plan.

Conflict of Interest: No conflicts declared.

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