



Assessment of the applications to Kocaeli Derince Research and Education Hospital in 2012 and 2013 to obtain disabled children's health board report

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ARTICLE INFO

ABSTRACT

Article History

Received 30 / 07 / 2014

Accepted 01 / 12 / 2014

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In this study, it is aimed to determine the neurodevelopmental disorders of children and adolescents applied to health committee for the disability, in a definite period. Cases of 0-18 aged 1512 children and adolescents who applied to health committee of our hospital between January 2012-December 2013 were analysed retrospectively. The study included cases whose 37.6% (569) were female and 62.4% (943) were male. The mean age was 7.66 ± 3.8 . 36.3% (549) of the cases were in the range of 0-6 years of age, 63.7% (963) of the cases were in the range of 7-18 years of age. The most common diagnoses were developmental delays in the range of 0-6 years of age and intellectual disability in the range of 7-18 years of age. Results of such studies investigating the applications will contribute to the statistical data of disabled population in our country, and will facilitate the organisation of social and educational rights of disabled children and adolescents applied to the health committees.

J. Exp. Clin. Med., 2014; 31:231-235

Keywords:

Child psychiatry
Disability report
Health committee
Neurodevelopmental disorders

1. Introduction

Disability refers to a person who has difficulty in adapting social life and meeting daily requirements and needs protection, maintenance or rehabilitation, consultancy and support services due to his loss of physical, mental, spiritual, sensual and social abilities, either inborn or afterwards (Aile ve Sosyal Politikalar Bakanlığı, 2013). According to statistical data of World Health Organization (WHO) for 2010, about 15% of world's population and 5.1% of population between 0-14 years are consisted of disabled people (WHO, 2011). Data of National Health Interview Survey indicated a 15.6% increase and rate of disabled population expanded to 7.94% between 2001-2011 (Houtrow et al., 2014). According to the statistical data of 2002, 12.28% of population and 8.78% of 0-19 years population are disabled in our country (Devlet İstatistik Enstitüsü, 2004).

Disabilities have to be certified so that disabled individuals can utilize the legal rights in our country. This certification is made by the disabled health committees of the health organizations. Disabled health committee reports are issued by medicine faculty hospitals, research and education hospitals, state hospitals and some military hospitals. Most common reasons for disabled health committee of children are; mental retardation, delay in cognitive development, specific learning disorder and autism spectrum disorders. Intellectual disability is characterized by significant limitations in both intellectual functioning and in adaptive behavior, which covers many everyday social and practical skills. Signs can range from mild to severe (American Psychiatric Association, 2013). Intellectual disability affects about 1% to 3% of the population (Kaplan and Sadock, 2012). The term 'delay in cognitive development' is used instead of mental retardation

to describe this condition before 6 years of age (Aile ve Sosyal Politikalar Bakanlığı, 2013).

Specific learning disorder is diagnosed through a clinical review of the individual's developmental, medical, educational, and medical history of family, reports of test scores and teacher observations, and response to academic interventions. Current academic skills must be well below the average range of scores in culturally and linguistically appropriate tests of reading, writing, or mathematics. Epidemiological studies report prevalence rates of 4-9% for deficits in reading and 3-7% for deficits in mathematics (American Psychiatric Association, 2013).

Autism spectrum disorder is diagnosed through communication deficits, such as responding inappropriately in conversations, misreading nonverbal interactions, or having difficulty building friendships appropriate to the age, dependence on routines, focus on inappropriate items. Some individuals show mild symptoms and others having much more severe symptoms (American Psychiatric Association, 2013). It is estimated a prevalence of 1% (Centers for Disease Control and Prevention, 2014).

The condition of the disabled people has today gained an increasing importance among the health, education and economic development concepts which are included within the contemporariness indicators of the society. Reliable statistical studies revealing the features of disabled population are required for the prevention and rehabilitation of mental and physical disabilities, and for regulation of disabled policies in order to enable adaptation, socialization, employment and improvement of life conditions (Çalık, 2004). According to statistical data of United States National Health Interview Survey, there is a decrement (11.8%) in physical health conditions and an increment (20.9%) in neurodevelopmental health conditions between 2001-2011. Therefore, statistical data of neurodevelopmental disorders increased in importance for our country, as there is not an expansive study to determine disabled population since 2002 (Houtrow et al., 2014). Thus in this study, we aimed to assess the neurodevelopmental disorders diagnosis data of the children and adolescents applied to the disabled health committee of our hospital and contribute to the statistical data of disabled people.

2. Material and methods

The study involved 1512 cases aged 0-18 who applied to the Child Disabled Health Committee of Kocaeli Derince Education and Research Hospital within the 2 years' time between 1 January 2012 and 31 December 2013. The disability rates of the cases were assessed based on the "International Classification of Functionality Ability Loss and Health", a classification system developed by the WHO to enable the identification of the conditions related to the functionality and restrictions of human health and the "Regulation on Disabled Parameter, Classification and the Health Board Reports which will be given to the disabled persons" (published in the Official Gazette dated 16.12.2010 and numbered 27787, dated 14.01.2012 and numbered 28173, and dated 30.03.2013 and numbered 28603) is used (Aile ve Sosyal Politikalar Bakanlığı, 2013). The cases which made applications to the disabled committee at our hospital were assessed by pediatricians, pediatric neurologists, ophthalmologists, physical

medicine doctors and child psychiatrists. The disability rate of the person is not determined based on the symptoms of the patient but the functionality level of the patient in percentage (%) according to the disability rates in the disability rates table enclosed in the regulation. Those with disability rate of 50% and above for whom the physician suggests they cannot fulfil their daily activities without the help of others are referred to as severely disabled (Aile ve Sosyal Politikalar Bakanlığı, 2013). The diseases and disabilities which are not mentioned in this table are assessed according to impaired functionality; and the estimating of disability rate is based on the disease caused the most severe disablement if there are multiple diseases and the other disablements are appended by using Balthazard Formula (Aile ve Sosyal Politikalar Bakanlığı, 2013).

In the child psychiatry assessment, mental examination was made to the cases and the cases older than 6 years of age were applied Wechsler Intelligence Scale for Children (WISC-R), and the cases younger than 6 years of age were applied Denver Developmental Screening Inventory (DDSI II) or Ankara Developmental Screening Inventory (ADSI) if DDSI II could not be applied.

Psychometric tests:

Wechsler intelligence scale for children-revised (WISC-R)

WISC-R is the revised form of Wechsler Intelligence Scale for Children (WISC) developed in 1949 by Wechsler (Wechsler, 1974). WISC-R consists of two sections as verbal and performance. Total intelligence score is calculated using verbal and performance scores. Standardization of WISC-R in Turkish children was done by Savaşır and Şahin (1995).

Denver II developmental screening inventory (DDSI II)

Denver developmental screening test II can be used to screen general development, including speech and language. The Denver test is one of the oldest and best known internationally standardized developmental growth chart, and is utilized to estimate the developmental age values of each individual. This standardized tool is designed to be used with children between birth and 6 years of age to assess performance on various age-appropriate tasks (Frankenburg et al., 1992). Better to call it a screening measure to provide an overview of the child's strengths and weaknesses. It was revised for Turkish children and found valid and reliable by Anlar and Yalaz (1996). It includes 116 items, a set of questions for parents and tests for the child on 20 simple tasks and items that fall into four categories: language (39 items), fine motor adaptive (29 items), gross motor (32 items), and personal-social (25 items). The number of items administered during an assessment varies with the child's age and ability (Frankenburg et al., 1992).

Ankara development screening inventory (ADSI)

It is an inventory which assesses the development and skills of the babies and preschool children in line with the information obtained from the person who cares the children. It was organized specific to several age groups and culture. It consists of 154 items which are answered as "Yes / No / I Don't Know". As a result of the application, 5 different scores are obtained namely Total Developmental Score and Language-Cognitive, Fine-Motor, Gross-Motor and Social

Skill-Self Care scores which represent the different areas of development which are associated with each other (Erol et al., 1993).

The data which was obtained following the assessments were analyzed by using Statistical Program for Social Sciences 17.

3. Results

Among the 1512 cases 37.6% (569) were female, 62.4% (943) were male. Male cases were found significantly higher compared to female cases ($p<0.001$). The age average of all cases was 7.66 ± 3.8 . Among the 549 (36.3%) cases aged 0-6, it was found that 187 cases (12.4%) were female, 362 (23.9%) cases were male, among the 963 (63.7%) cases aged 7-18, it was found that 382 (25.4%) were female, 581 (38.3%) were male. In the assessment of the diagnosis distributions of the cases, it was found that among the cases aged 0-6, 40.6% had mild delay in cognitive development, 15.2% had speech and language disorders, 14.2% had moderate delay in cognitive development, 7.3% were autism, 5.6% had heavy delay in cognitive development, 4.6% had atypical autism, 0.5% of them had specific learning disorders, and no mental problems were found in 15.7% of them. 37.8% of the cases aged 7-18 had mild intellectual disability, 22.3% of them had specific learning disorders, 14.3% of them had moderate intellectual disability, 12.1% of them had limit mental functionality, 5.1% of them had speech and language disorders, 3.2% of them had severe intellectual disability, 1.6% of them had autism, 0.6% of them had atypical autism and no mental problems were found in 6.9% of them (Table 1). In the cases aged 0-6, speech and language disorder diagnosis ($p<0.001$), autism diagnosis ($p<0.001$), atypical autism diagnosis ($p<0.001$) were found significantly higher when compared to the cases aged between 7-18. Specific learning disorders was found significantly high in the cases aged between 7-18 ($p<0.001$). Atypical autism diagnosis was found significantly higher in the male cases (6.62%) aged between 0-6 when compared to female cases (0.53%) ($p=0.001$). Mild intellectual disability diagnosis was found significantly higher in the female cases aged between 7-18 (45.81%) when compared to male cases (32.53%) ($p<0.001$). Specific learning disorders was found significantly higher in the male cases aged between 7-18 (25.64%) when compared to female cases (17.27%)

($p=0.002$). Stuttering diagnosis was found significantly higher in the male cases aged between 7-18 (3.1%) when compared to female cases (0.3%) ($p=0.002$).

4. Discussion

Based on June 2014 data which was prepared according to the state based records of the Department of Research and Development and Project Office of the General Directorate of Disabled and Elder People Services, the number of disabled people in the age group of 0-19 was explained as 409,295 (Engelli ve Yařlı Hizmetleri Genel Müdürlüğü, 2014). In the results of "Disabled Research in Turkey" which was made by the State Institute of Statistics in 2012, the orthopedic, visual, hearing, lingual and mental disabled are at the rate of 3.50% in the age group of 0-19 (Devlet İstatistik Enstitüsü, 2004). The disability rate increases up to 8.78% when chronic diseases are included in this rate (Devlet İstatistik Enstitüsü, 2004). Based on the data of Turkish Statistical Institute dated 31 December 2013, the population aged between 0-19 consists of more than 25.000.000 people in our country (Türkiye İstatistik Kurumu, 2013). When the rate of disabled people aged between 0-19 based on the Disabled Research in Turkey is taken into consideration, it can be supposed that there are more than 2.200.000 disabled young people aged between 0-19 in our country (Devlet İstatistik Enstitüsü, 2004). In this regard, the number of disabled individuals aged between 0-19 which is only 409.295 in the state records made us think that the statistical records about the disabled people are insufficient (Engelli ve Yařlı Hizmetleri Genel Müdürlüğü, 2014).

Based on the results of Disabled Research in Turkey, the rate of orthopedic, visual, hearing, lingual and speaking and mental disabled people was found as 1.54% (1.37% female, 1.70% male) in the age group of 0-9, and 1.96% (1.65% female, 2.26% male) in the age group of 10-19 (Devlet İstatistik Enstitüsü, 2004). In our study, the male sex rate in the cases who applied to the disabled health committee (37.6% female, 62.4%) was found higher in conformity with the results of the studies by Bařgöl and Saltık (2012) (38.4% female, 61.6% male) and řahin and colleagues (2014) (32.2% female, 67.8% male). It was seen that the male/female rate in our study (1.66), was similar to, the male/female rates in the studies by Bařgöl and Saltık (1,6) (2012) and řahin and

Table 1. Diagnosis distribution of the cases based on 0-6 and 7-18 age ranges

	0-6 Age			7-18 Age		
	Female % (n)	Male % (n)	Total % (n)	Female % (n)	Male % (n)	Total % (n)
Normal development	18.2 (34)	14.4 (52)	15.7 (86)	-	-	-
Mild delay in cognitive development	39.6 (74)	41.2 (149)	40.6 (223)	-	-	-
Moderate delay in cognitive development	17.6 (33)	12.4 (45)	14.2 (78)	-	-	-
Heavy delay in cognitive development	5.9 (11)	5.5 (20)	5.6 (31)	-	-	-
Normal intellectuality	-	-	-	6.8 (26)	6.9 (40)	6.9 (66)
Borderline intellectual functionality	-	-	-	9.9 (38)	13.6 (79)	12.1 (117)
Mild intellectual disability	-	-	-	45.8 (175)	32.5 (189)	37.8 (364)
Moderate intellectual disability	-	-	-	15.7 (60)	13.4 (78)	14.3 (138)
Severe intellectual disability	-	-	-	3.7 (14)	2.9 (17)	3.2 (31)
Specific learning disorder	0.5 (1)	0.6 (2)	0.5 (3)	17.3 (66)	25.6 (149)	22.3 (215)
Stuttering	1.6 (3)	2.8 (10)	2.3 (13)	0.3 (1)	3 (18)	2 (19)
Other speech and language disorders	11.2 (21)	13.5 (49)	12.7 (70)	2 (8)	3.8 (22)	3.2 (30)
Atypical autism	0.5 (1)	6.6 (24)	4.6 (25)	0.3 (1)	0.9 (5)	0.6 (6)
Autism	4.8 (9)	8.6 (31)	7.3 (40)	1.3 (5)	1.7 (10)	1.6 (15)

colleagues (2) (2014) and these results were higher than the results of Disabled Research in Turkey (0-9 age group: 1.24-10-19 age group: 1.37) (Devlet İstatistik Enstitüsü, 2004). This result indicates that female disabled individuals less frequently apply to the health committees. In this regard we supposed that female disabled individuals less frequently make use of their legal rights or they might be neglected. According to the results of Disabled Research in Turkey, literacy was at the rate of 28.14% among the males and 48.01% among the females with orthopaedic, hearing, lingual and speaking, visual and mental disability while 9.78% in males and 35.04% in females with chronic diseases, which also promotes our supposition (Devlet İstatistik Enstitüsü, 2004).

Cases aged between 0-6 who made applications to child disabled health committee were most often diagnosed with mild delay in cognitive development (40.6%) and the cases aged between 7-18 were most often diagnosed with mild intellectual disability (37.8%). The total rate of the cases that were diagnosed with mild delay and mild intellectual disability in cognitive development in our study (38.8%) was in conformity with the rate of mild intellectual disability in the study by Başgöl and Saltık (2012) (38.1%) and it was lower than the rate in the study by Şahin and colleagues (2014) (61.6%). Half of the female cases aged between 7-18 who applied to our child disabled health committee consisted of the cases with mild intellectual disability. The diagnosis of mild intellectual disability in the female cases aged between 7-18 (45.81%) was found to be significantly higher when compared to male cases (32.53%). Although intellectual disabilities are seen more frequently in male sex, it was supposed that this lowness is a relative one depending on other higher rates in the male group when compared to the female group (Kaplan and Sadock, 2012).

It was seen that the mild delay in cognitive development in the age group of 0-6 (14.2%) and the moderate intellectual disability rate at the age group of 7-18 (14.3%) were in conformity with the moderate intellectual disability rate in the studies by Başgöl and Saltık (2012) (15.6%) and Şahin and colleagues (2014) (14.8%).

The rate of severe delay diagnosis in cognitive development in the age group of 0-6 (5.6%) were found higher than the severe intellectual disability (3.2%) diagnosis rate in the age group of 7-18. It was supposed that the lower severe intellectual disability rate in the age group of 7-18 can be associated with the higher number of application made with other disorder diagnoses in the age group of 7-18 and the report durations of the cases who were diagnosed in the age group of 0-6. The total rate of the cases diagnosed with severe delay in cognitive development and severe intellectual disability (4.1%) was lower than the study by Başgöl and Saltık (2012) (9.8%) and it is in conformity with the rate in the study by Şahin and colleagues (2014) (4.5%).

In conformity with the literature finding that speech and language disorders are more frequently seen at earlier ages, speech and language disorder diagnosis in the cases aged between 0-6 was found significantly higher (15.2%) when compared to the cases aged between 7-18 (5.1%) (11). Stuttering diagnosis was found significantly higher in the male cases aged between 7-18 (3.1%) when compared to female cases (0.3%). This result is in conformity with the

information that stuttering is more frequently seen in men (Kaplan and Sadock, 2012).

The rate of being diagnosed with autism in the age group of 0-6 (7.3%) was found significantly higher when compared to the autism rate in the age group of 7-18 (1.6%). It was supposed that this could be associated with the failure of re-application in the following years depending on the indefinite reports given to the cases diagnosed with autism. The rate of being diagnosed with atypical autism in the age group of 0-6 (4.6%) was found significantly higher when compared to the rate of atypical autism in the age group of 7-18 (0.6%). This result made us think that substantial part of the cases diagnosed with atypical autism in the age group of 0-6 could now have shown a recovery outside the atypical autism diagnosis in the age group of 7-18 by the effect of the factors such rehabilitation and medical treatments. The total rate of autism and atypical autism in our study (5.7%) was found lower than the common developmental disorder rate in the studies by Başgöl and Saltık (2012) (8.8%) and Şahin and colleagues (2014) (15%). In conformity with the information that common developmental disorders were seen more frequently in men, atypical autism diagnosis was found significantly higher in male cases aged between 0-6 (6.62%) when compared to female cases (0.53%) (Kaplan and Sadock, 2012).

The rate of being diagnosed with specific learning disorders in the age group of 7-18 (22.3%) was found significantly higher than the rate of specific learning disorders diagnosis (0.5%) in the age group of 0-6. It was supposed that this result could be associated with the failure to notice the specific learning disorders by the family or friends of the child in preschool period. Specific learning disorders diagnosis in the male cases aged between 7-18 (25.64%) was found significantly higher when compared to the female cases (17.27%). This result is in conformity with the information that specific learning disorders diagnosis is seen more frequently in men (Kaplan and Sadock, 2012).

Conclusion

The results of this study contribute the statistical data of disabled population by indicating the features and diagnosis of children applied to our disabled health committee for 2 years. This is one of the widely studies on neurodevelopmental disorders of disabled children and adolescents in our country.

The number of studies done on disability rates is quite limited in our country. Besides, the in capacity of data collection and the deficiencies in our registration systems make difficult it to determine the population of disabled people. Broad studies are required to promote the statistical data in this field.

It is essential to assess the data obtained from the applications to the disabled health committees in our country where the data on the rate of disabled people is insufficient. In this regard, it was supposed that collecting disabled health committee data in a common database and adding them to the disabled data of the Department of Research and Development and Project Office of the General Directorate of Disabled and Elder People Services will contribute to disabled data and planning necessary arrangements for the disabled people in our country.

When the researches of the child disabled healthy committee and the rates of disabled individuals in the society are assessed, it is observed that female disabled individuals less frequently applied to the health committees. Broader

researches are required so that the rights of female disabled individuals can be protected and they can make use of necessary rehabilitation services.

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