Parent-Reported Prevalence of Chronic Health Conditions in School-Aged Children in Kayseri, Turkey

Kayseri'de Okul Çağı Çocuklarında Bildirilen Kronik Sağlık Sorunları Prevalansı

Mine SIĞMALI,[a]
Vesile ŞENOL, MD,[b]
Elçin BALCI, MD,[c]
Ahmet ÖZTÜRK, MD,[d]
Fevziye ÇETİNKAYA, MD[c]

[a]Bolvadin State Hospital, Afyonkarahisar
[b]Halil Bayraktar Health Services, Vocational College, Erciyes University, Departments of [c]Public Health, [d]Biostatistics, Erciyes University Faculty of Medicine, Kayseri

Geliş Tarihi/*Received:* 02.12.2008
Kabul Tarihi/*Accepted:* 23.03.2009

Yazışma Adresi/*Correspondence:*
Vesile ŞENOL, MD
Erciyes University
Halil Bayraktar Health Services, Vocational College, Kayseri, TÜRKİYE/TURKEY
vsenol@erciyes.edu.tr

ABSTRACT Objective: The aim of this study is to determine the parent-reported prevalence of chronic health conditions (CHC) and affecting factors in school-aged children. **Material and Methods:** This cross-sectional study was conducted in Kayseri, Turkey, in 2005. A questionnaire was applied to parents of the 4847 children aged 7-17 years in randomly selected 20 primary schools out of 99. CHC were defined as a condition being diagnosed in advance by physician which interfered with daily disfunctioning during three months in the last year. **Results:** Of the children 35.3% had one or more chronic conditions. Teeth and periodontal diseases (32.8%), visual impairments (30.8%) and urinary incontinence (14.8%) were the most commonly reported conditions. Arthritis, musculoskeletal impairments and tic disorders were significantly higher in 13-17 age groups. While urinary incontinence were found to be more prevalent in boys and 7-12 age groups whereas visual impairments were significantly higher in girls and 13-17 age groups. Speech impediments were significantly higher in boys than in girls and teeth and periodontal diseases in 7-12 age groups than 13-17 ($p< 0.01$). The prevalence of CHC among children was higher from families low-educated and low-income compared with ones had higher socioeconomic state. Arthritis was 2.3 [95% Confidence Interval (CI): (1.5-3.5), mental impairments 2.4-3.6 (1.3-4.5, 1.4-9.5 respectively), asthma 2.2 (1.2-3.8), urinary incontinence, tic disorders and school phobia 1.7 (1.2-2.4, 1.2-2.5, 1.1-2.7 respectively), teeth and periodontal diseases 1.3 times (1.1-1.6) were higher in children from low-educated parents]. The prevalence of depression, hearing impairments were 2.1 (1.4-2.9, 1.3-3.3 respectively), arthritis, teeth and periodontal diseases 1.6 times (1.0-2.5, 1.3-1.9 respectively) were higher in children from low-income parents. **Conclusion:** Parent-reported prevalence of chronic conditions in school-aged children, is quite high, and more closely associated with family ecology. Teeth and periodontal diseases, visual impairments and urinary incontinence were the most commonly reported conditions. So, chronic conditions in childhood must be examined as a major public health problem and taken into account impact of the family ecology on prevalence of CHC while were determining health policies.

Key Words: Population; chronic disease; prevalence

ÖZET Amaç: Bu çalışmanın amacı, okul çağı çocuklarında bildirilen kronik sağlık sorunları prevalansını ve etkileyen faktörleri belirlemektir. **Gereç ve Yöntemler:** Kesitsel nitelikteki bu çalışma, 2005 yılında Kayseri'de yapılmıştır. Doksan dokuz ilköğretim okulu arasından rastgele örnekleme tekniği ile seçilen 20 okulda 7-17 yaşları arasındaki 4847 öğrenci ailesine anket uygulanmıştır. Daha önce hekim tarafından tanılanan ve son bir yıl içinde çocuğun en az üç ay süre ile günlük yaşam aktivitelerini sınırlayan durumlar kronik sağlık sorunu olarak tanımlanmıştır. **Bulgular:** Çocukların %35.3'ü bir veya daha fazla kronik sağlık sorununa sahipti. Diş ve diş eti hastalıkları (%32.8), görme bozuklukları (%30.8) ve idrar kaçırma (%14.8) en sık bildirilen sorunlar arasında idi. Artrit, kas-iskelet sistemi yetersizlikleri ve tik bozukluğu 13-17 yaş grubunda anlamlı düzeyde daha yüksekti ($p< 0.05$). İdrar kaçırma erkeklerde ve 7-12 yaş grubunda daha yaygın iken, görme bozuklukları kızlarda ve 13-17 yaş grubunda fazla idi ($p< 0.01$). Konuşma bozuklukları kızlara göre erkeklerde, diş ve diş eti hastalıkları 13-17 yaş grubuna göre 7-12 yaş grubunda anlamlı düzeyde daha yüksekti ($p< 0.01$). Kronik sağlık sorunları prevelansı sosyoekonomik statüsü iyi olanlara göre, düşük gelirli ve eğitim düzeyi yetersiz aile çocuklarında anlamlı düzeyde daha yüksekti. Eğitim düzeyi düşük aile çocuklarında artrit 2.3 [%95 Güven Aralığı (GA): (1.5-3.5), mental yetersizlik 2.4-3.6 (1.3-4.5, 1.4-9.5 sırasıyla), astım 2.2 (1.2-3.8), idrar kaçırma, tik bozukluğu, okul korkusu 1.7 (1.2-2.4, 1.2-2.5, 1.1-2.7 sırasıyla, diş ve dişeti rahatsızlıkları prevelansı 1.3 kat (1.1-1.6) daha yüksekti]. Aylık geliri düşük aile çocuklarında depresyon, işitme bozuklukları 2.1 (1.4-2.9,1.3-3.3 sırasıyla), artrit, diş ve diş eti rahatsızlıkları prevalansı 1.6 kat (1.0-2.5, 1.3-1.9 sırasıyla) daha yüksekti. **Sonuç:** Bildirilen kronik sağlık sorunu prevalansı okul çağı çocuklarında oldukça yüksek olup, aile çevresi ile yakından ilişkilidir. Diş ve diş eti rahatsızlıkları, görme bozuklukları ve idrar kaçırma en sık bildirilen sorunlardır. Dolayısıyla, çocukluk dönemi kronik sağlık sorunları ciddi bir halk sağlığı sorunu olarak değerlendirilmeli ve sağlık politikaları belirlenirken aile çevresinin kronik sağlık sorunları prevalansı üzerine etkisi göz önünde tutulmalıdır.

Anahtar Kelimeler: Okul çağı çocukları; kronik sağlık sorunları; görülüş sıklığı

Turkiye Klinikleri J Pediatr 2009;18(3):193-9

Health policy makers at the national and international level require quality baseline information about the prevalence of chronic physical health conditions and disability among children and the impact of these health problems in order to develop policies. The knowledge base concerning the prevalence and impact of childhood chronic illnesses and disabilities is limited in Turkey, while several researches pertinent to the epidemiologic features of chronic health conditions/impairments in children have been conducted in other countries available.[1-5]

In the literature, estimates of the proportion of children with one or more chronic health conditions range from less than 5% to more than 30%.[4] Newacheck and Taylor found that among 31.5% of US children under age eighteen were with chronic physical health conditions/impairments.[1] Home environment; family income, education or occupation of the parent is important for children's mental health and development.[6] Poverty, low education or occupation of the parent are more closely associated with increased risk of children's accidents and illness.[7,8] Prevalence of chronic health conditions/impairments were higher for older children, boys and children from low-income and low-educated and single-parent families.[2,9]

According to the World Health Organization's definitions; health conditions are considered chronic when they are long-term (at least three months' duration) or are of a permanent nature, which interfered with daily functions during the last year. Health conditions are diseases and disorders, injuries, and related health problems, such as kidney disease, asthma, and epilepsy. Impairments are defined as "problems in body, function or structure such as a signification deviation or loss". Impairments, like health conditions, occur at the body systems level, but are functional or structural in nature rather than biological, biochemical, neurological. Impairments affect bodily funtioning that is non-purposive or spontaneous in nature such as sensation of pain, articulation difficulties, and hearing loss.[10,11]

The aim of this study is to determine the prevalence of chronic health conditions/impairments in school-aged children based on parent-reporters, and to identfy the relation between these conditions and the socio-economic status of their parents.

MATERIAL AND METHODS

This cross-sectional study was conducted in Kayseri, Turkey, in 2006. Ninety-nine primary schools in Kayseri were stratified according to the socioeconomic levels of the families of the children as: welfare, middle and poor and with simple random sampling technique, 20 primary schools, welfare (7), middle (6) and poor (7) were included in the sample, 1/5 from each stratum. Out of the 20 schools, eight classes from each school - one class from each grade -first to eigth, which covered a total of 4847 school age children 7-17- were selected. A questionnaire was used for the present study. The questionnaires were send to the families of the children, answered by their parents -especially mothers- and then the questionnaires were taken to the schools by the children, which is how the data was gathered. In total, the parents of 4508 children answered the questionnaires.

The conditions observed in at least three months or more were considered as chronic conditions. Conditions emerged under three headings (i) chronic disease, (ii) physical impairments, and (iii) emotional/behavioural disorders. The list of chronic disease included teeth and periodontal disease, frequent or repeated infections, asthma, arthritis or rheumatism, skin diseases and "other" category. The "other" category included diseases of digestive and immune system, epilepsy, kidney disease, diabetes tip-I, heart disease, neoplasms, endocrine, blood disorders, severe haedache, high blood pressure, hepatit-B, and convulsive disorder, which analysed together because each of these conditions had a lower frequency. The list of physical impairment included visual, hearing, speech, musculoskeletal, and mental disability. The list of emotional/behavioural disorders included urinary incontinence, tic disorder, depression and school phobia, and drug abuse.

In multiple logistic regression model, the dependent variables were chronic health conditions and independent variables were age and socioeconomic factors. The participants were divided in-

to two age groups, (1) 7-12 years old; (2) 13-17 years old. Socio-economic variables included parental education, parental occupation and household monthly income. Parental education was based on both maternal and paternal education. A dichotomous variable category was depend as "low" if both parents were illiterate and/or had a maximum 5-year education, and as "high" if one or both parents had 9-year and more education. The parents' occupations were divided into four groups based on the highest occupation of one of the parents: 1. clerk, 2. employed, 3. self-employed, 4. unemployed.

Family income was measured as the family's monthly income after tax deduction. The variable was divided into three quartiles very low (less than minimum wage (220 $), and favorable (220-633 $) income. Approval for the study was obtained from the Erciyes University Faculty of Medicine Ethics Committee and written consent was obtained from the parents of children prior to the study.

STATISTICAL ANALYSIS

Chi-square tests were used to determine significant differences in proportions among categorical variables. Multiple logistic regression (backward: wald) analyses was performed to analyze the effects that factors which are determinants in prevalence of chronic health conditions include age, maternal and paternal education and occupation, family income, and consanguineous marriage. Odds ratios and 95% confidence intervals were calculated using multiple logistic regression for each model. All statistical analyses were calculated by SPSS version 13.0 (Illinois, Chicago, USA). The reference category has the odds variables 1 and no confidence interval. Two-tailed p-values of < 0.05 were considered to be significant.

RESULTS

Of all the children's families, 46% had low income, 37.7% were worker, 7% were unemployed and 15% had no social security. Of the fathers 56.5% had graduated secondary school and over. Of the mothers 57.6% were with or less than primary school education and 90.6% were housewives. As shown in Table 1, 35.3% of all the children have one or more chronic health conditions. Twenty-two percent were reported to have one, 7.8% two, and 5.2% three or more chronic health conditions.

The most commonly reported chronic conditions included teeth and periodontal diseases (32.8%), visual impairments (30.8%), urinary incontinence (14.8%). Other relatively common con-

TABLE 1: Prevalence of chronic health conditions among schooll-aged children.*

Overall			**%**		**95% CI***		
Children with no health problem	2916		64.7		63.2-66.0		
Children with one or more chronic conditions	1592		35.3		33.9-36.7		
Children with one condition	1004		22.3		21.0-23.1		
Children with two conditions	353		7.8		7.0-8.6		
Children with three or more conditions	235		5.2		4.5-5.9		
Sociodemographic variables	**Children with chronic health condition**		**Children without chronic health condition**		**Total**		
	n	**%**	**n**	**%**	**n**	**%**	**p**
Gender							
Boys	799	36.3	1401	63.7	2200	48.8	< 0.05
Girls	733	34.4	1515	65.6	2308	51.2	
Total	1592	35.3	2916	64.7	4508	100.0	
Age groups							
7-12	1258	36.0	2237	64.0	3495	77.5	> 0.05
13-17	334	33.0	679	67.0	1013	22.5	
Total	1592	35.3	2916	64.7	4508	100.0	

*n= 4508.

ditions included speech impediments (11.8%), frequent or repeated infections (9.6%), and depression (9.2%). The least prevalent condition was diseases of skin (3.6%) and musculoskeletal impairments (3.0%) and drug abuse (0.3%).

Except for a few conditions, chronic health problems were found to be slightly more prevalent among boys and older children. Arthritis, musculoskeletal impairments and tic disorders were significantly higher in 13-17 age groups than 7-12 ($p< 0.05$). While urinary incontinence were found to be more prevalent in boys and 7-12 age groups whereas visual impairments were significantly higher in girls and 13-17 age groups ($p< 0.01$). Speech impediments were significantly higher in boys than in girls and teeth and periodontal diseases in 7-12 age groups than 13-17 ($p< 0.01$) (Table 2).

In the multiple logistic regression (backward stepwise: wald) analyses; the majority of diagnostic category showed a social gradient in prevalence according to one of socio-economic variables. The prevalence of chronic health conditions among children was higher in low-educated and low-income families compared with the families who had high social classes. While the prevalence of teeth and periodontal disease is 1.7 times (CI= 1.3-2.2) higher in children aged 7 to 12, conversely visual impairments 1.7 (CI= 1.2-2.0) and tic disorders 2.5 (CI= 3.3-1.2) times lower in the same age group. The prevalence of teeth and periodontal diseases was 1.3 times (CI= 1.1-1.6), asthma 2.2 times (CI:1.2-3.8), arthritis or rheumatism 2.3 times (CI:1.5-3.5), urinary incontinence, tic disorders and school phobia 1.7 times (CI= 1.2-2.4, 1.2-2.5, 1.1-2.7 respectively), mental impairments 2.4-3.6 times (CI= 1.3-4.5, 1.4-9.5 respectively) is higher in low-educated parents compared to in high-educated ones. The prevalence of depression and hearing impairments was 2.1 times (CI= 1.4-2.9, 1.3-3.3 res-

TABLE 2: Prevalence of chronic health conditions among school-aged children by gender and age groups

		Gender			Age groups		
	n	Boys	Girls		7-12	13-17	
	1592	(n= 793)	(n= 799)	p	(n= 1258)	(n= 334)	p
Conditions		%	%		%	%	
Chronic diseases							
Teeth and periodontal diseases	522	33.0	32.5	NS	34.9	24.9	< 0.001
Frequent or repeated infections*	153	9.9	9.3	NS	10.1	7.8	NS
Arthrithis	107	6.4	7.1	NS	6.0	9.3	<0.05
Asthma	81	5.3	4.9	NS	5.4	3.9	NS
Skin diseases	57	3.6	4.0	NS	3.2	5.1	NS
Any other**	177	11.1	10.6	NS	10.5	13.5	NS
Physical impairments							
Visual impairments	490	27.5	34.0	< 0.01	27.0	44.9	< 0.001
Speech impediments	188	14.1	9.5	< 0.01	12.3	9.9	NS
Hearing impairments	83	5.4	5.0	NS	4.8	6.6	NS
Mental impairments	61	4.3	3.4	NS	4.1	3.0	NS
Musculoskeletal impairments	48	3.1	2.9	NS	2.5	4.8	< 0.05
Emotional/behavioral disorders							
Urinary incontinence	235	17.3	12.2	< 0.01	17.8	3.3	< 0.001
Psychiatric problems	147	9.5	9.0	NS	8.7	11.4	NS
Tic disorders	110	6.9	6.9	NS	5.1	13.8	< 0.001
School phobia	101	6.3	6.4	NS	6.8	4.8	NS
Drug abuse	5	0.5	0.1	NS	0.2	0.6	NS

1592: Number of the children with chronic health conditions. A child may have one or more chronic health conditions.

*Diseases of organ (otitis media, pharyngitis etc.)

**Any other: Diseases of digestive, immune and endocrine system, epilepsy, kidney disease, diabetes tip-I, heart disease, neoplasms, blood disorders, severe headache, high blood pressure, hepatit- B, convulsif disorder.

pectively), arthritis or rheumatism, and teeth and periodontal diseases 1.6 times (CI= 1.0-2.5, 1.3-1.9 respectively) higher in low-income parents compared to those in favorable-income ones. The prevalence of visual impairments was 1.6 times (CI= 1.2-2.0) lower in children, whose mothers were housewives compared to those working out of (Table 3).

DISCUSSION

Chronic health conditions are an important public health problem which is seen mostly in the childhood. It is estimated that the incidence of chronic conditions has been increasing, especially in developing countries. Limited healthcare access, lack of recognition of chronic conditions severity by parents or physicians, psychosocial dysfunction of the child and family and delays in accessing appropriate medical treatment contribute to increasing the morbidity and mortality of chronic conditions.

We should keep in mind that this study's results are based on parent interviews. The validity of using household surveys to estimate prevalence of childhood chronic conditions and disability has been questioned because estimates are based on adults, not on clinical testing or medical examinations. So, respondents are more likely to report chronic condition either under or over actual, depending on conditions with little impact or in contrast, and are associated with embarrassment or stigma.[5] Because of that, previous researches have shown that parent reports are generally valid.[4,12,13]

The reported prevalence of 35.3% of Turkish children aged 7 to 17 having one or more chronic health conditions is comparable with the findings previously conducted in Turkey and other developed countries examining the prevalence of chronic

TABLE 3: Multiple logistic regression analysis for models predicting variables of the prevalence in school-age children with chronic health conditions (n:4508).

Chronic health condition/impairment	Predicting variables			
	Age groups (year) (7-12 vs 13-17) OR*(95%CI**)	Parental education‡ (Low vs high) OR*(95% CI**)	Monthly income (Low/favorable) OR*(95% CI**)	Presence of intermarriage OR*(95% CI**)
Arthritis	-	2.3 (1.5-3.5) †	1.6 (1.0-2.5)	-
Teeth & periodontal diseases	1.7 (1.3-3.2)	1.3 (1.1-1.7) ‡	1.6 (1.3-1.9)	1.4 (1.1-1.7)
Asthma	-	2.2 (1.2-3.8) §	-	-
Frequent or repeated infections	2.5 (1.0-6.5)	-	-	-
Visual impairments	0.6 (0.5-0.8)	-	-	1.3 (1.1-1.7)
Speech impediments	-	-	1.7 (1.3-2.3)	-
Hearing impairment	-	-	2.1 (1.3-3.3)	-
Mental impairment	-	3.6 (1.4-9.5) §		
	-	2.4 (1.3-4.5) †	-	
Urinary incontinence	6.4 (3.5-11.9)	1.7 (1.2-2.4) §	1.8 (1.3-2.4)	-
Tic disorder	0.4 (0.3-0.8)	1.7 (1.3-2.5) †	-	-
Depression	-	-	2.1 (1.4-2.9)	-
School phobia	-	1.7 (1.1-2.7) †	1.9 (1.2-2.3)	-

** OR: Odds ratio,*

***CI: Confidence interval,*

Note. Independent variables were age, maternal and paternal education and, occupation, monthly income, intermarriage. After multiple regression, only the variables listed in the table were significantly associated with chronic health conditions.

-Dropped in model,

‡: Maternal and paternal education,

†: Paternal education,

§: Maternal education.

illness among school-aged children. In prior prevalence studies using other data sources, prevalence estimates for childhood chronic conditions have ranged from less than 5% to more than 30%. This prevalence was found as 14% by Cadman et al., 14.5% by Groholt et al., 30.3% by Mcdougall et al.[2,3,5] Our results also generally differed from previous researches regarding the prevalence multiple chronic conditions and the types of conditions that are most and least prevalent. In this study, the prevalence rate of chronic conditions was higher than results of similar studies. High reported prevalence is more likely to be affected by data collection methods and/or depending on itself the chronic condition and do not know how to identify child's health condition recently.[14] Another, most recent studies of NHIS interviewing methodology reported between 8% and 12% of the conditions in interviews were not found on medical records.[1]

In previous researches which were conducted in developed countries; asthma diseases of allergic diseases of respiratory system, frequent or repeated ear infections impairment of speech were found to be the most prevalent types of conditions.[1,2,7] However, in our study was found that teeth and periodontal diseases, impairment of visual and urinary incontinence were found to be the most prevalent conditions while asthma, eczema and diseases of skin were the least prevalent.

In addition, as in the present study, in other studies, visual, speech and hearing impairments were reported conditions in the first three degrees although alignment may change a little.[2,4,5] However, an interesting finding in our study is that the prevalence rate of urinary incontinence was found to be slightly lower than in some epidemiological researches conducted in Turkey.[15-19] While the percentage urinary incontinence was 14.8% in our study the other researches conducted in country-wide were ranging from 11.5% to 20.8%. In several studies conditions, urinary and reproductive systems, mental illnesses, and cancer were most likely to be underreported in parent interviews, associated with embarrassment or stigma.[6,20] Our result may also be affected from similar factors.

In our study, the prevalence rate of speech impediments (11.8%) were found to be higher in the researches conducted in the same area or in other countries formerly (3.8% and 3-4% respectively).[21,22] In this study, reported prevalence of tic disorders (6.9%) is between reference points that identical with the studies, 2.6% by Ünalan et al, 2.6% by Stefanoff et al, and ranged from 1% to 13% by Çuhadaroğlu et al, 4% by James & Leckman, and 20% by Abe & Oda performed before.[23-27]

Chronic health conditions were found to be slightly more prevalent among boys associations that have been reported elsewhere.[1,2,28] Especially, the rates of speech impediments and urinary incontinence were significantly higher in boys, as in the previous studies.[1,5,20] In addition, urinary incontinence were found to be more prevalent for 7-12 age groups in contrast, visual impairments and tic disorders for 13-17 age groups. Just as the socioeconomic status of the family can influence child health, as it is also an important factor in the outcome of a chronic childhood illness. In our study, the majority of diagnostic category showed a social gradient in prevalence according to one of socio-economic variables. Teeth and periodontal diseases, arthritis or rheumatism, asthma, mental and tic disorders, urinary incontinence, school phobia, speech impediments, hearing impairments and depression were (1-4 times) higher in children who had low-education and low-income parents compared to high-educated and middle or favorable-income ones.

The findings in our study confirm to others reporting a link between low socio-economic status and adverse health outcomes.[1,2,7-10] In these studies the prevalence of chronic conditions was found higher in children living with low-educated, worker or low-income parents than in children whose parents had better socioeconomic status. Unfortunately, the relation between chronic conditions in childhood and family ecology was examined only in a few studies.

In sum, chronic health conditions are common in school-aged children, must be examined as a major public health problem. The prevalence of chro-

nic health conditions had showed social gradient with family ecology. Age, parental education and monthly income were the strongest predictors for high prevalence. So, this relationship must be faced by society and obtained findings should be used to determine whether these common conditions are preventable with medical, social and public health policies.

REFERENCES

1. Newacheck PW, Taylor WR. Childhood chronic illness: prevalence, severity, and impact. Am J Public Health 1992;82(3):364-71.
2. Cadman D, Boyle MH, Offord DR, Szatmari P, Rae-Grant NI, Crawford J, et al. Chronic illness and functional limitation in Ontario children: findings of the Ontario Child Health Study. CMAJ 1986;135(7):761-67.
3. Grøholt EK, Stigum H, Nordhagen R, Köhler L. Children with chronic health conditions in the Nordic countries in 1996-influence of socioeconomic factors. Ambul Child Health 2001; 7(Issue 3-4):177-89.
4. Newacheck PW, Halfon N. Prevalence and impact of disabling chronic conditions in childhood. Am J Public Health 1998;88(Issue 4): 610-17.
5. McDougall J, King G, de Wit DJ, Miller LT, Hong S, Offord DR, et al. Chronic physical health conditions and disability among Canadian school-aged children: a national profile. Disabil Rehabil 2004;26(1):35-45.
6. Jabine TB. Reporting chronic conditions in the National Health Interview Survey. A review of findings from evaluation studies and methodological test. Vital Health Stat 2 1987;(105):1-45.
7. Loeber R, Stouthamer-Loeber M. Family factors as correlates and predictors of juvenile conduct problems and delinquency. In: Tonry MH, Morris N, eds. Crime and Justice. An Annual Rewiev of Research. 7nd ed. Chicago; University of Chicago Press; 1986. p.7:29-149.
8. Aber JL, Bennett NG, Conley DC, Li J. The effects of poverty on child health and development. Annu Rev Public Health 1997;18: 463-83.
9. Wise PH, Meyers A. Poverty and child health. Pediatr Clin North Am 1988;35(6):1169-86.
10. Palermo TM, Childs G, Burgess ES, Kaugars AS, Comer D, Kelleher K Functional limitations of school-aged children seen in primary care. Child: Care, Health & Development 2002; 28(5):379-89.
11. World Health Organization. International Statistical Classification of Diseases, and Related Health Problems. 10th revision (ICD-10). Geneva, Switzerland; World Health Organization, 2004. p. 1-169.
12. World Health Organization. International Classification of Functioning, Disability and Health, ICF. Geneva, Switzerland, WHO; 2001. p. 1-267.
13. Weitzman M, Walker DK, Gortmaker S. Chronic illness, psychosocial problems, and school absences. Results of a survey one country. Clin Pediatr (Phila) 1986;25(3):137-41.
14. Canino G, Shrout PE, Alegría M, Rubio-Stipec M, Chávez LM, Ribera JC, et al. A methodological challenges in assessing children's mental health services utilization. Ment Health Serv Res 2002;4(2):97-107.
15. Kırılmaz A, Işık A. Prevalence of study of nocturnal enuresis at primary schools related to Park Health Cente]. Ankara Hospital Journal of Medicine 1994;29:73-7.
16. Bilir Ş, Arı M, Dönmez NB. [Studying at prevalence of nocturnal enuresis in children aged 4-12 in Rize, Giresun, Nevşehir, Malatya and Ankara cities.] J Health Sci 1988;60(2):51-64.
17. Ergin S, Özgür S. [Determination of prevalence of eneresis nocturna in Eskişehir Male Orphanage]. Anadolu Tıp Dergisi 1979;1(1): 60-6.
18. Ünalan D, Çetinkaya F, Baştürk M. Prevalence of nocturnal enuresis at 7-12 aged in urban area. Anatolian Journal of Psychiatry 2001;2(3):175-82.
19. Çarman KB, Bıçakcı Z, Palancı Y, Alp R. [Prevalence of enuresis nocturna in school age children living in Kars and parent's view to enuresis nocturna.] Turkiye Klinikleri J Pediatr 2008;17(2):103-9.
20. Madow WG. National center for health statistics. Interview Data on Chronic Conditions Compared with Information Derived from Medical Records. 2nd ed. Washington DC: US Govt Printing Office, Public Health Service Publication, 1967. p.84.
21. Ünalan D, Çetinkaya F, Baştürk M. [The prevalence of stuttering at 7-12 aged children in urban area of Kayseri, central Anatolia.] Turkiye Klinikleri J Pediatr 2002;11(1):15-9.
22. Yairi E, Embrose N. Onset of stuttering in preschool children. Selected factors. J Speed Hearing Res 1992;35:782-88.
23. Ünalan D, Baştürk M, Çetinkaya F. Prevalence of tic disorders in children aged 7-12 years in urban area of Kayseri. Turk Arch Ped 2001;36(4):219-23.
24. Stefanoff P, Wolanczyk T, Gawrys A, Stefanoff E. Prevalence of tic disorders among schoolchildren in Warsaw, Poland. Eur Child Adolesc Psychiatry 2008;17(3):171-8.
25. Çuhadaroğlu F. Disorders which was frequency seen in child psychiatry. Hacettepe Tıp Dergisi 1999;30(1):48-52.
26. James F, Leckman DJ. Tic disorders. In: Rutter M, Taylor E, Hersov L, eds. Child and Adolescent Psychiatry Modern Approaches 3nd ed. London: Denmark Hill SE58AF; 1994. p. 455-519.
27. Abe K, Oda N. Incidence of tics in the offspring of childhood tiquers: a controlled follow-up study. Dev Med Child Neurol 1980;22(5):649-53.
28. Lollar DJ. Framing and using measures of chronic conditions in childhood: a public health perspective. Ambul Pediatr 2002;2(1): 24-5.