Original Article

The Health Complaints of School Age Children in Turkey

Cüneyt Çalışkan[1], Hatice Topsakal[2], Orhan Koray Arberk[3], Burcu Küçük Biçer[4],
Hande Konşuk Ünlü[5], Hilal Özcebe[6]

[1]Çanakkale Onsekiz Mart University Faculty of Health Science, Department of Emergency Aid and Disaster Management, Çanakkale, Turkey
[2]Republic of Turkey Ministry of Health Directorate of General Health Services, Ankara, Turkey
[3]Eskişehir Provincial Health Directorate, Department of Emergency Medical Service, Eskişehir, Turkey
[4]Gazi University Faculty of Medicine, Department of Medical Education and Informatics, Ankara, Turkey
[5]Hacettepe University Institute of Public Health, Department of Health Research, Ankara, Turkey
[6]Hacettepe University Faculty of Medicine, Department of Public Health, Ankara, Turkey

ABSTRACT

Aim: This study aims to identify the frequency of the most commonly seen health complaints and their relations with the socio-demographic characteristics of households in Turkey.

Materials and Methods: The Turkey Health Survey research was conducted as a cross-sectional study by The Turkish Statistical Institute. Within the scope of the research, the health status history of a total of 3.921 children aged 7-14 was examined to identify the following factors: Gender and age of the children, some sociodemographic characteristics of their households, health complaints in the previous 6 months and treatment status at health-care facilities for these children aged 7-14 years.

Results: The findings showed that of the 3.921 children who participated in this research, 50.8% were male, 34.4% had at least one health complaint, and 88.0% of the children with health complaints were treated. The most commonly seen health complaints in the children in the previous 6 months were oral and dental-related health complaints (25.8%), eye-related health complaints (14.6%) and infectious diseases (9.8%). According to the results of a logistic regression, the higher the number of people living in the household, the presence of a person who defines their health status as poor and the presence of an individual with chronic disease in the household affect the presence of health complaints in children negatively.

Conclusion: It was found that the health status of children can be affected in families with chronic disease or poor health, and it is suggested that research on child health should be investigated extensively in such families.

Keywords: Child, health survey, health status, oral-dental health

Introduction

Approximately 1.3 billion (17.0%) of the world's population was in the 5-14 age group in 2010 (1). The promotion of children's health and the prevention of children's diseases is important to increase social and economic development in the community (2). According to the 2014 global health estimates survey, which assesses health loss and mortality rates related to injury and disease worldwide, 2.6% (1.4 million) of all deaths were in the 5-14 age group (3). Infectious diseases, HIV/AIDS, injuries and certain types of cancer are common mortality causes

in the 5-14 age group in the world, although their rates are lower than adults and younger children (4). The most common causes were infectious diseases (46.4%), non-communicable diseases (36.5%) and injuries (17.1%) in the 5-14 age group. It is already known that these diseases increase the burden of disease and disability-adjusted life year in the 5-14 age group (5). Additionally, the health problems experienced such as oral health complaints, injuries and refractive errors are likely to affect quality of life and school success negatively (6-8).

Whitehead determined that socio-economic status, cultural and environmental conditions, social and community networks and individual characteristics contribute to the health status of individuals (9). Negative traumatic events experienced in association with one of these factors, especially before the age of 18, lead to generational health problems and (10) contribute to an increased disease burden, and also a decrease in quality of life. Community-based interventions are recommended to prevent health problems in childhood. The most commonly seen diseases in the 7-14 age group are related to oral and dental health, eyes, hearing and mental health (11,12). This study aims to identify the frequency of the most commonly seen health complaints and their relations with the socio-demographic characteristics of households in Turkey.

Materials and Methods

The Turkish Statistical Institute (TURKSTAT) in the context of the Turkey health survey investigates periodically to clarify the overall health status of the people living in the country. The data including injury-related data for the 7-14 age group, their health status and their utilization of health services were obtained with the institutional permission of TURKSTAT.

Within the scope of the research, the health status history of a total of 3.921 children aged 7-14 was examined to identify the following factors: various sociodemographic characteristics of the children and their families and the reasons for attending a health-care facility other than sickness within the previous 12 months, experience of the listed sicknesses/health problems in the previous 6 months and attendance at a dentist's or treatment status at health-care facility for children aged 7-14 years. The children in the 7-14 age group were matched with household characteristics in the data set.

Enquiries were made concerning the health complaints of the children for the previous 6 months and any treatment received was categorized in three choices (inpatient, outpatient and no treatment). The health complaints declared were grouped by the researchers under the following headings: Eye-related, oral and dental health related, nutrition-related, mental health, infectious diseases, skin diseases, musculoskeletal system diseases, health problems related to abuse or violence cases, Down syndrome, and other.

Chi-square test were used to analyze the relationship between each health complaint or treatment received with the independent variables. The probable factors identified in chi-square analyses (p<0.020) were used in the multivariate analysis. Against the dichotomous dependent variable of the presence of any health complaint of the children in the previous 6 months, the independent variables, namely gender, the highest level of educated person in the household, the highest level of educated woman in the household and social security status of the household were selected through the Backward (conditional) method. This research was conducted as a secondary analysis of the Turkey Health Survey of TURKSTAT. The corporate ethics responsibility of TURKSTAT was fulfilled. TURKSTAT data is open to all applicants and patient approval is obtained by TURKSTAT. The data from TURKSTAT was received via e-mail on March 21, 2016 by filling out the Micro Data Request Form. The data does not contain any data such as name and identity information that identifies the person. The research was conducted in accordance with the Helsinki Principles at all steps.

Statistical Analysis

A statistical significance level of 0.05 was accepted for all tests. The SPSS 23.0 program was used in this study.

Results

Of the 3.921 children in the 7-14 age group participating in the survey, 50.8% were boys, 49.2 of them were primary school students and 36.0% of them had graduated from primary school. Out of all families, 18.2% of them had no health insurance and 13.2% of them had a green card/special government funded health care entitlement for low income families. (Table I).

Out of all the children, 34.4% of them had experienced at least one health complaint and 88.0% of the children with health complaints received treatment. The main health complaints in the previous 6 months were oral and dental-related health complaints (25.8%), eye-related health complaints (14.6%) and infectious diseases (9.8%). Most of the children with health complaints received outpatient treatment except for those with Down syndrome or victims

of abuse/violence (51.7% and 82.6% respectively). Among the children with oral and dental-related health complaints, 77.8% received outpatient treatment; these percentages were 80.7% for eye-related health complaints and 82.6% for infectious diseases. Of the children with nutrition-related complaints, 71.8% received outpatient treatment. The ratio of participants who did not receive treatment was 41.6% in cases of mental health complaints, and 66.7% in the cases of abuse/violence (Table II).

Of the children aged 7-14 years, 58.3% visited a dentist for reasons of toothache (56.9%) and/or tooth extraction (50.9%). The ratio of those patients who went to the dentist for a check-up was 37.6% (Figure I).

The findings showed that the presence of an individual in the household defining their health status as poor, and the presence of an individual in the household with chronic disease had a statistically significant association with the children having a health complaint in the previous 6 months (p<0.05). Those children receiving treatment for their complaints were more likely to live with an individual who defined their health status as poor (p<0.05) (Table III).

According to the results of a logistic regression, the number of people living in the household, the presence of a person with poor health status and the presence of an individual with chronic disease in the household were significantly related to the presence of health complaints seen in children. The lower number of people living in the family, the presence of an adult with poor health or an adult with chronic disease leads to an increases the number of health complaints of children in the household (p<0.001) (Table IV).

Table I. Socio-demographic characteristics of the children in 7-14 age group, Turkey health survey, 2014

Socio-demographic characteristic	n	%
Children		
Gender		
Boy	1.991	50.8
Girl	1.930	49.2
Educational level		
Illiterate	82	2.1
Primary school student	1.929	49.2
Graduated from primary school	1.411	36.0
Graduated from secondary or vocational school	499	12.8
Families		
Status of treatment cost coverage for families*		
Governmental health insurance, Social security institution	3.227	82.3
Out-of-pocket-expenditure	715	18.2
Green card**	516	13.2
Private health insurance/funds	195	4.9
Others, unexplained	124	3.2
Household's average monthly income (TL)		
≥1.080	1.499	38.2
1.081-1.550	801	20.4
1.551-2.170	619	15.8
2.171-3.180	553	14.1
3.181≤	449	11.5

n=3.921, *: More than one option marked for one person, **: The low income families whose outpatient and some medicine expenses are financed by the government

Table II. Health complaints and treatment protocol in the previous 6 months among the children aged 7-14 years

Health complaint	Presence of health complaints*		Treatment protocol** (%)		
	Yes		Outpatient	Inpatient	No treatment
	n	%			
Oral and dental health-related health complaints	1.011	25.8	77.8	2.4	19.8
Eye-related health complaints	571	14.6	80.7	3.7	15.6
Infectious diseases (e.g., flu, sinusitis, diarrhea)	386	9.8	82.6	7.0	10.4
Skin complaints	211	5.4	82.0	4.3	13.7
Nutrition-related complaints	149	3.8	71.8	9.4	18.8
Hearing-related health complaints	123	3.1	67.5	14.6	17.9
Musculoskeletal system complaints	92	2.3	71.7	10.9	17.4
Mental health complaints	89	2.3	51.7	6.7	41.6
Down syndrome	6	0.2	66.7	33.3	
Abuse/violence	3	0.1	33.3		66.7
Other	189	4.8	76.7	15.3	7.9

*: Percent calculation made based on the number of respondents, **: Percentage calculated based on the number of people with health problems

Discussion

This study focuses on those children aged between 7 to 14 in our country. Awareness of health complaints commonly seen in children aged between 7 to 14 will be helpful for health care professionals as well as school administrators and teachers. In our study, almost one out of
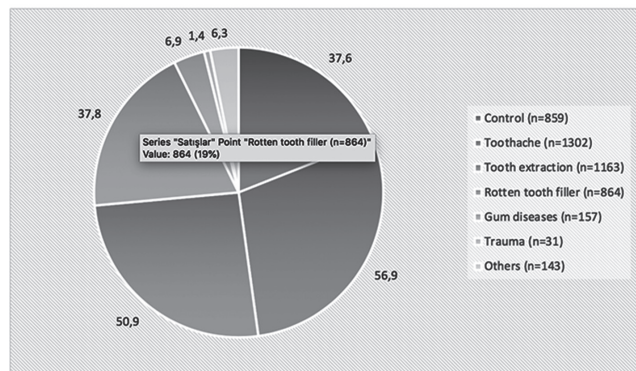

Figure 1. Reasons for children's referral to a dentist

3 children aged 7-14 years had at least one health complaint during the previous 6 months; the most commonly seen complaints were determined as oral and dental-related health complaints (25.8%) and eye-related health complaints (14.6%), and infectious diseases (9.8%).

Oral and dental-related health complaints constitute an important health complaint for children of school age. In this study, oral and dental health-related health complaints are seen as the most important problem among children aged 7-14, which may be attributed to the fact that children have limited control over their lifestyle factors. It was found that more than half of the children consulted a dentist, and about one-third of the children went to the dentist for a check-up. The study of Ozturk and Sonmez (13) found that the mean Decayed, Missing and Filled Teeth (DMFT) index was 2.83 in 12-year old children and 3.24 in 15-year old children in the Southeast Anatolian Region. Gökalp et al. (14) showed that the average number of

Table III. Children with health complaints and receiving treatment in the previous 6 months by gender and their family characteristics						
	In the previous 6 months					
	Health complain			**Receiving treatment**		
	n	**%***	**p**	**n**	**%****	**p**
Gender of children Boy Girl	 677 670	 34.0 34.7	0.662	 591 595	 87.3 88.8	 0.402
Family characteristics						
Number of people in the household 3 or less 4 5 6 7 or more	 298 471 294 134 150	 40.8 37.1 33.8 27.3 26.7	**<0.001**	 266 426 255 113 126	 89.3 90.4 86.7 84.3 84.0	0.109
Household income level (TL) ≥1.080 1.081-1.550 1.551-2.170 2.171-3.180 3.181≤	 514 261 228 187 157	 34.3 32.6 36.8 33.8 35.0	0.566	 440 238 202 164 142	 85.6 91.2 88.6 87.7 90.4	0.177
Health insurance No Yes	 55 1.292	 30.9 34.5	0.334	 50 1,136	 90.9 87.9	0.671***
Presence of an adult with poor health status in the household No Yes	 1.021 326	 32.9 39.9	**<0.001**	 912 274	 89.3 84.0	**0.014***
Presence of an adult with chronic disease in the household No Yes	 159 1.188	 22.9 1.188	**<0.001**	 147 1.039	 92.5 87.5	0.069***
*: Percentage based on the number of people interviewed from the related socio-demographic characteristic, **: Percentage of the children with health complaints, ***: Result of Fisher exact test						

Table IV. Logistic regression model examining the health complaints of the children aged 7-14 years by household characteristics

	Health complaints of the children in the previous 6 months		
	Exp (B)	**Confidence Interval (95%)**	**p**
Number of people living in the household			
7 or more	Reference		
3 or less	**2.423**	**(1.891-3.105)**	**<0.001**
4	**1.888**	**(1.507-2.366)**	**<0.001**
5	**1.592**	**(1.254-2.022)**	**<0.001**
6	1.117	(0.848-1.472)	0.432
Presence of an adult with poor health status in the household			
No	Reference		
Yes	**1.376**	**(1.163-1.628)**	**<0.001**
Presence of an adult with chronic disease in the household			
No	Reference		
Yes	**1.981**	**(1.626-2.414)**	**<0.001**

*Hosmer-Lemeshow 0.981, Classification percentage 65
**Variables included in the model: gender, the highest level of education in the household, the highest level of education of women in the household, social security status

DMFT was found to be 1.9 and 2.3 in children aged 12 and 15, respectively. Our study supports that oral and dental-related health complaints were an important morbidity cause among 7-14 year old children and declared as the most common health problem by their families. It was found that socio-economic characteristics have a 50% effect on the prevalence of dental care-related health complaints observed in children aged 12 (15). In a study conducted in 2002 in the United States, preventive dental care visits were found to be less frequent in low-income families (16). In "The Tokyo Declaration on Dental Care and Oral Health for Healthy Longevity", issued at the Global Community World Congress 2015, the social welfare of future generations was considered by emphasizing that life-long oral health is a fundamental human right, to be underpinned by an "oral-health-in-all-policies" approach (12). Increasing the level of awareness of families and children concerning oral and dental health issues, and making adjustments in their lifestyles (16) can contribute to protecting children against any oral and dental health complaints they may encounter in the future (17).

Eye-related health complaints are important for children to continue their quality of life in terms of health, education and social health (11). Strabismus, amblyopia and optic problems are among the most commonly reported eye disorders among children in the United States (18). According to our study, eye-related health complaints rank second among the most common health complaints seen in those children aged 7-14 in Turkey. The WHO declared that 80% of visual impairments including blindness are avoidable. The two main causes of visual impairment in the world are uncorrected refractive errors (42%) and cataract (33%). The WHO recommends cost-effective interventions to reduce the burden of both conditions in all countries. The WHO also recommends that universal access to comprehensive and equitable eye care services are provided and/or coordinated, with emphasis on vulnerable groups such as children (19). Unfortunately, the survey did not include the details of eye diseases, but our study supports that eye care services should be strengthened in school health programs.

Mental health complaints are seen in 10-20% of children and adolescents around the world, and their related disease burden is high (20). This study supports the outcomes of the previous study, and also it showed the need to prevent mental health illnesses. Moreover, it was seen that there was a large gap existing between the use of appropriate resources and interventions (21).

Various health complaints are experienced in 7-14 age group children in Turkey. It was found that not all children with health complaints received the necessary treatment. It was reported that children with oral and dental-related health complaints (19.8%), nutrition-related complaints (18.8%), hearing-related health complaints (17.9%), musculoskeletal system complaints (17.4%) and eye-related health complaints (3.7%) did not receive any treatment. We do not have enough information concerning the reasons for not receiving any treatment for their health complaints. According to children's rights, families are responsible for their children's health and also the government should follow up children's health rights. Regarding this issue, the level of perception concerning a health complaint as serious in a family could be an important factor with respect to accessing treatment.

This study shows that the percentage of the children with health complaints in the previous 6 months is lower in larger families. The presence of a person with chronic disease or with poor health in the household causes to increase the children having health complaints (p<0.001).

There are various social determinants that affect health that could be changed and prevented. Among the social determinants that are likely to affect child health are poverty, domestic violence, maternal depression and family mental health, substance abuse in the home, parental literacy and family structure (22). Even though we do not have enough information about the relations in the families, we know that chaos in the family can play a role on a child's health. Chaos is described as crowded, noisy, disorganized settings in the family (23).

Study Limitations

This research has some limitations. Firstly, the child's data was linked to household data, but we could not specify the mother's and the father's characteristics from the household data. Therefore, the variables described the features of the household. Secondly, the respondents may have provided incomplete information depending on their memory, they may have deliberately given incorrect answers, or they may not have paid attention to the questions. Thirdly, TURKSTAT do not collect data through surveys that consist of questions that are in line with international standards, therefore we did not have enough data to explain our results.

Conclusion

This study shows that almost one out of three children aged between 7 and 14 had at least one health complaints during the previous 6 months and most of them received health care services. However, some children with health complaints could not reach the health care facilities properly in the country. Family health should be promoted and supported to increase child health status and also inequality in families should be reduced. We also found that the health status of children was affected in families with chronic disease or poor health, and research on child health should be investigated extensively in such families.

Ethics

Ethics Committee Approval: This research was conducted as a secondary analysis of the Turkey Health Survey of TURKSTAT. The corporate ethics responsibility of TURKSTAT was fulfilled. TURKSTAT data is open to all applicants and patient approval is obtained by TURKSTAT. The data from TURKSTAT was received via e-mail on March 21, 2016 by filling out the Micro Data Request Form. The data does not contain any data such as name and identity information that identifies the person. The research was conducted in accordance with the Helsinki Principles at all steps.

Informed Consent: Patient approval is obtained by TURKSTAT.

Peer-review: Enternally and internally peer-reviewed.

Authorship Contributions

Concept: H.Ö., Data Collection or Processing: C.Ç., H.T., O.K.A., B.K.B., H.K.Ü., Analysis or Interpretation: C.Ç., H.T., O.K.A., B.K.B., H.K.Ü., Literature Search: H.Ö., Writing: H.Ö.

Conflict of Interest: No conflict of interest was declared by the authors.

Financial Disclosure: The authors declared that this study received no financial support.

References

1. UN. Interactive Data – PopulationAgeSex, 2016. [Online]. Available from: http://esa.un.org/unpd/wpp/

2. Gore FM, Bloern PJN, Patton GC, et al. Global burden of disease in young people aged 10–24 years: a systematic analysis. Lancet 2011;377:2093–102.

3. WHO. Global Health Estimates 2014 Summary Tables: Deaths by Cause, Age and Sex, by WHO Region, 2000-2012, 2014. [Online]. Available from: http://www.who.int/healthinfo/global_burden_disease/en/

4. Lozano R, Naghavi M, Foreman K, et al. Global and regional mortality from 235 causes of death for 20 age groups in 1990 and 2010: a systematic analysis for the Global Burden of Disease Study 2010. Lancet 2012;380:2095–128.

5. WHO. Global Health Estimates 2014 Summary Tables: DALY by Cause, Age and Sex, 2000-2012, 2014. [Online]. Available from: http://www.who.int/healthinfo/global_burden_disease/en/.

6. Pulache J, Abanto J, Oliveira LB, Bönecker M, Porras JC. Exploring the association between oral health problems and oral health-related quality of life in Peruvian 11- to 14-year-old children. Int J Paediatr Dent 2015;26:81-90.

7. Schneeberg A, Ishikawa T, Kruse S, et al.. A longitudinal study on quality of life after injury in children. Health Qual Life Outcomes 2016;14:120.

8. Kumaran SE, Balasubramaniam SM, Kumar DS, Ramani KK. Refractive Error and Vision-Related Quality of Life in South Indian Children. Optom Vis Sci 2015;92:272-8.

9. Bambra C, Gibson M, Sowden A, Wright K, Whitehead M, Petticrew M. Tackling the wider social determinants of health and health inequalities: evidence from systematic reviews. J Epidemiol Community Health 2010;64:284-91.

10. Shonkoff JP, Garner AS. The Lifelong Effects of Early Childhood Adversity and Toxic Stress. Pediatrics 2012;129:232–46.

11. Gilbert C, Foster A. Childhood blindness in the context of VISION 2020 - The right to sight. Bull World Health Organ 2001;79:227-32.

12. Tokyo Declaration on Dental Care and Oral Health for Healthy Longevity. World Congress, 13-15 March 2015. Tokyo, Japan.

[Online]. Available from: http://www.who.int/oral_health/tokyodeclaration_final.pdf?ua=1

13. Öztürk AB, Sönmez B. Assessment of Oral and Dental Health in Children Living in Southeast Anatolia Rural: Cross-Sectional Field Results. Konuralp Tıp Dergisi 2016;8(3) 195-201. Available from: http://www.konuralptipdergi.duzce.edu.tr/Dokumanlar/konuralptipdergi/sayi8-3/07_KTD-2016-8-3.pdf

14. Gökalp S, Güçiz Doğan B, Tekçiçek M, Berberoğlu A, Ünlüer Ş. The oral health profile of 5, 12 and 15 year olds, Turkey-2004. Hacettepe Diş hekimliği Fakültesi Derg 2007;31:3–10.

15. Hobdell MH, Oliveira ER, Bautista R, Myburgh NG, Lalloo R, Narendran S at all. Oral diseases and socio-economic status (SES). Br Dent J 2003;194:91–6.

16. Alm A, Fahraeus C, Wendt LK, Koch G, Andersson-Gare B, Birkhed D. Body adiposity status in teenagers and snacking habits in early childhood in relation to approximal caries at 15 years of age. Int J Paediatr Dent 2008;18:189–96.

17. Kenney GM, McFeeters JR, Yee JY. Preventive Dental Care and Unmet Dental Needs Among Low-Income Children. Am J Public Health 2005;95:1360–6.

18. Banayot RG. A retrospective analysis of eye conditions among children attending St. John Eye Hospital, Hebron, Palestine. BMC Res 2016;9:202.

19. WHO. Universal Eye Health. A Global Action Plan 2014-2019. Spain, 2013. Available from: https://www.who.int/blindness/AP2014_19_English.pdf

20. Kieling C, Baker-Henningham H, Belfer M, et al. Child and adolescent mental health worldwide: evidence for action. Lancet 2011;378:1515–25.

21. Belfer ML. Child and adolescent mental disorders: the magnitude of the problem across the globe. J Child Psychol Psychiatry 2008;49:226–36.

22. Chung EK, Siegal BS, Garg A, et al. Screening for Social Determinants of Health Among Children and Families Living in Poverty: A Guide for Clinicians. Curr Probl Pediatr Adolesc Health Care 2016;46:135–53.

23. Kamp Dush KK, Schmeer KK, Taylor K. Chaos as a social determinant of child health: Reciprocal associations? Soc Sci Med 2013;95:69-76.