

Evaluation of child abuse in a Central Anatolian city of Turkey*Kamile Marakoglu¹, Selma Civi²¹Assist. Prof. Dr., ²Prof. Dr., Department of Family Medicine, Meram Faculty of Medicine, University of Selcuk, Konya, Turkey**Abstract**

Background: Although child abuse has existed since the beginning of the human history, it only has a 100- year background of being considered as a problem and studies fostering into it. The start of these studies in Turkey is very new and limited data exists. The aim of this study is to determine the frequency and the related factors of child abuse in Konya, a Central Anatolian city of Turkey.

Methods: The study was conducted in five randomly selected primary schools. One thousand one hundred and fifteen students out of 1368 in grades 2-8 were included. A questionnaire including open ended questions for sociodemographic characteristics and the experience for child abuse were completed by the students. Abuse was defined in three categories as emotional, physical and sexual abuse.

Results: Of 1115 students, 264 (23.7%) were abused. There was significant relationship between being abused and low socioeconomic status ($p=0.01$) and working mother ($p=0.0001$). Aggressive personality ($p=0.02$), feeling insecure ($p=0.001$) and the idea of leaving home ($p=0.001$) were more frequently observed in abused children than non-abused children. Idea of suicide in abused children was higher than non-abused children ($p=0.0001$). Abused children had lower academic performance at school than non-abused children ($p=0.002$) and had less hope for future ($p=0.0001$).

Conclusion: Child abuse is one of the most common pediatric disorders in all age groups. Family physicians should be aware of the risk factors for child abuse and possible preventive interventions.

Key words: child abuse, emotional, physical, and sexual abuse.

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Introduction

Physical abuse of children in our society is a serious problem that has only recently been recognized by the medical community. The first published report in contemporary medical literature was in 1946, and the term "battered-child syndrome" was coined in 1962.¹ In the following years, children who experienced any type of abuse or neglect became regularly encountered.^{1,2} Subsequently, child abuse became recognized as a social problem in both developed and developing countries of the world.³

Child abuse can be defined as causing or permitting any harmful or offensive contact on a child's body; and, any communication or transaction of any kind which humiliates, shames, or frightens the child. Some child development experts go a bit further, and define child abuse as any act or omission, which fails to nurture or in the upbringing of the children. This state is a behaviour disorder, also accepted by the experts as an abuse, preventing the child's physical, psycho-social development and isolating him/her from the cultural values of his/her society.⁴⁻⁷ While the prevalence of child abuse vary from country to country and between races^{2,14}, it has been determined as 14-54% in Turkey.^{5,6,13-16}

Child abuse includes emotional, physical, sexual abuse and neglect. The National Center on Child Abuse and Neglect has established a set of working definitions of the various types of abuse; however, the specific acts that constitute the various forms of abuses are defined under state law and,

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thus, vary from one jurisdiction to another. For this reason, child abuse is a legal finding, not a diagnosis.⁴

Emotional abuse includes the failure of a caregiver to provide an appropriate and supportive environment, and includes acts that have an adverse effect on the emotional health and development of a child. Such acts include restricting a child's movements, denigration, ridicule, threats and intimidation, discrimination, rejection and other nonphysical forms of hostile treatment. They may also have a potential of harm on the child's cognitive, emotional and physical development. It is the most difficult to define but the most common abuse type. Some examples are; rejecting, despising, leaving alone, misleading, picking, scaring, intimidating, threatening, leading to crime, not meeting needs, frequently criticizing, expecting more responsibility, humiliating, making fun, nicknaming, pressure and trying to be authority.^{4,7}

The National Center on Child Abuse and Neglect defines child physical abuse as: "The physical injury or maltreatment of a child under the age of eighteen by a person who is responsible for the child's welfare under circumstances which indicate that the child's health or welfare is harmed or threatened thereby..." Some examples are; punching, hitting, kicking, throwing, slapping, using belt, pan, hose, strap, cigarette, iron or any other hot object. It is the most common and the easiest determined type of abuse.^{4,7}

National Center on Child Abuse and Neglect defines child sexual assault as: "Contacts or interactions between a child and an adult when the child is being used for sexual stimulation of the perpetrator or another person when the perpetrator or another person is in a position of power or control over the victim." It is the most difficult to determine and the most hidden type of abuse and it is considerably an important event in terms of its short and long term effects. It constitutes of many behaviours including sexy speaking, showing sexual organ or doing masturbation, exhibiting, explicitly or implicitly peeping, touching, oral-genital sex, interfemoral affair, sexual exploitation, pornography and raping.^{4,7} It has been reported that 25.0% girls and 15.0% boys are exposed to sexual abuse before puberty.^{17,18} In USA at least, 100.000–500.000 children a year are exposed to abuse.^{6,19} Sexual abuse rates tend to rise after the onset of puberty, with the highest rates occurring during adolescence.^{20,21} In a nationwide telephone survey of 2000 children aged 10-16 years in the United States 23.5%

of girls and 9.6% of boys reported being subjected to a completed or attempted sexual assault at least once.²²

The abused children may show inharmonious and striking manners like getting away from family, being tense, developing dependant character, developing feelings like being valueless.⁷ Depression, social problems, high levels of distress, rigidity, unhappiness, loneliness, emotional and behavioral problems may develop in children who are exposed to abuse.^{4,6,8,10,23,24}

Risk factors for child abuse are high rates of crime in the society, poor social services, high poverty rate, high unemployment rate, history of physical or sexual abuse as a child for parents, teenage and/or single parent, emotional immaturity, poor coping skills, low self-esteem, substance abuse, poor social support, domestic violence, poor parenting skills, mental health problems, multiple young children, unwanted pregnancy, denial of pregnancy and prematurity, low birth weight and handicapped child.^{4,25,26} Although child abuse has existed since the beginning of the human history, it only has a 100-year background of being considered as a problem and studies fostering into it. The data on child abuse in Turkey is scarce because of the inadequate records. Although child neglect and abuse is a broad subject, physical abuse steps forward within all the abuse types.

The aim of this study was to find out the prevalence and related factors for child abuse in primary school students.

Material and Methods

A descriptive and cross-sectional study was conducted in November 2005-February 2006 to find out the prevalence and related factors for child abuse in five randomly selected urban primary school students aged 8-14 years in Konya city of Turkey. Approval and consent were obtained from the Department of Education in Konya. Of 1368 students, 1115 (81.5%) participated in the study. They were in grades 2-8. The first grade teachers did not give consent.

First, information on child abuse was given to teachers and students by a family physician. Then students completed questionnaires on child abuse without giving their names. The teachers added information on the student's school performance and personality. The sociodemographic information was included in the questionnaire. The open-ended questions on child abuse included the type of abuse, the features of abuser and their future expectations.

Table 1: Sociodemographic details of abused and non-abused children in our study (n=1115)

	Abused children		Non-abused children		p
	(n)	(%)	(n)	(%)	
Age (mean±SD) ^a	264	11.18±1.7	851	11.06±1.6	0.282
BMI (mean±SD) ^a	264	17.8±4.1	851	17.5±4.3	0.353
Gender					
Female	119	45.1	420	49.4	0.252
Male	145	54.9	431	50.6	
Grade					
2-5	142	53.8	501	58.9	0.165
6-8	122	46.2	350	41.1	
Number of siblings					
1-2	96	36.4	314	36.9	0.933
3-11	168	63.6	537	63.1	
SES					
Good	96	36.4	379	44.5	0.010
Moderate	139	52.7	417	49.0	
Bad	29	11.0	55	6.5	
Contribution to family income					
Yes	53	20.1	147	17.3	0.357
No	211	79.9	701	82.7	
Migration					
Yes	43	16.3	153	18.0	0.528
No	221	83.7	698	82.0	
Type of family					
Nuclear	213	80.7	669	78.6	0.735
Disperse	14	5.3	46	5.4	
Wide	37	14.0	136	16.0	

^a Student-t test
(Chi-square or Fisher exact test for the others)
SES: socioeconomic status.

Statistical analysis

Data were analyzed using SPSS software (version 11). The chi-square test and student's t test were used. Significance was judged as $p \leq 0.05$.

Results

Sociodemographic details

The age, gender and body mass index (BMI) of abused and non-abused children were similar (Table 1). Low socioeconomic status in abused children was higher than non-abused children ($p=0.010$). There was significant relationship between parental occupation and child abuse ($p=0.0001$ for mothers, $p=0.002$ for fathers) (Table 2).

Prevalence of child abuse

Two hundred and sixty-four (23.7%) out of 1115 students stated that they have been exposed to one or more type of abuse. The prevalence and type of child abuse in these 264 students are presented in Table 3. The number of students experiencing physical

abuse was 112 (10.1%), emotional abuse 210 (18.8%) and sexual abuse 15 (1.3%) in 1115 students.

Emotional abuse

Males constituted 52.9% (111/210) and females 47.1% (99/210) of the abused children. The mean age was 11.13±1.7 years (range=8-14). The question 'Why do you think you are exposed to emotional abuse?' was asked to abused children and 22.9% (27/118) expressed "committing crime" and 18.6% (22/118) "being aggressive". "How did you react?" was asked and 24.9% (57/127) said they kept silent, 18.9% (24/127) stated that they cried. Of abused children, 8.9% (16/179) expressed the violence frequency as everyday, 15.1% (27/179) once a week, 33.0% (59/179) once a month, 38.5% (69/179) once in 2-3 months and 4.5% (8/179) once a year. The abusers were fathers in 37.7% (43/114) of students, mothers 31.6% (36/114), elder siblings 14.9% (17/114), other relatives 5.3%

Table 2: Parental details of children in the study

	(n)	Abused children (%)	(n)	Non-abused children (%)	p
Formal marriage					
Yes	241	91.3	795	93.4	
No	23	8.7	50	5.9	
Divorced / Widowed	-	-	6	0.7	0.109
Mean age of mothers ^a	264	36.17±5.7	851	35.70±5.2	0.209
Maternal occupation					
Housewife	238	90.2	828	97.3	
Working out	26	9.8	23	2.7	0.0001
Education status of mother					
Illiterate	54	20.5	146	17.2	
Primary school and more	210	79.5	705	82.8	0.259
Step-mother					
Yes	10	3.8	22	2.6	
No	254	96.2	829	97.4	0.307
Mean age of fathers ^a	264	39.9±5.6	851	38.9±5.6	0.01
Paternal occupation					
Illiterate	32	12.1	101	11.9	
Primary school and more	232	87.9	750	88.1	0.259
Step-father					
Yes	9	3.4	21	2.5	
No	255	96.6	818	97.5	0.430

^a Student-t test

(Chi-square or Fisher exact test for the others)

(6/114), step parents 0.9% (1/114) and individuals out of family 9.6% (11/114).

Physical abuse

Males represented 65.2% (73/112) and females 34.8% (39/112) of the abused children. The mean age was 11.03±1.7 years (range=8-14). The question 'Why do you think you have been exposed to physical abuse?' was asked to the abused children and 23.2% (26/84) replied because of 'committing crime', 12.5% (14/84) 'rejecting'. The response rate was 75.0% (84/112). The question 'How did you react?' was asked and 26.0% (32/84) stated that they kept silent, 23.7% (30/89) cried. The frequency was everyday for 9.2% (9/98) of students, once a week for 25.5% (25/98), once a month for 28.6% (28/98), once in 2-3 months for 31.6% (31/98) and once a year for 5.1% (5/98). The abusers were mothers in 39.1% (34/87), fathers in 31.0% (27/87), elder siblings in 14.9% (13/87), other

relatives in 6.9% (6/87) and individuals out of family in 8.0% (7/87).

Sexual abuse

Males were 53.3% (8/15) and females 46.7% (7/15) of the abused children. The mean age was 10.0±1.5 years (range=8-13). 'Why do you think you are exposed to sexual abuse?' was asked and 42.9% (3/7) answered as 'I don't know' and 28.6% (2/7) 'being young'. 'How did you react?' was asked and 60.0% (6/10) of students said they kept silent, 20.0% (2/10) stated that they tried to keep away and 20.0% (2/10) resisted. We have no data on the frequency of abuse and the identity of abuser.

Aggressive personality (p=0.023), feeling insecure (p=0.001) and the idea of leaving home (p=0.001) and suicidal thought (p=0.0001) were more frequent in abused children than non-abused ones. School performance was lower in abused children (p=0.002) and they had less hope for future (p=0.0001) (Table 4).

Table 3: Types of child abuse in primary school students (n=1115)

	Gender		
	Female n (%)	Male n (%)	Total n (%)
Type of child abuse			
Physical	17 (3.1)	29 (5.1)	46 (4.1)
Sexual	3 (0.6)	-	3 (0.3)
Emotional	73 (13.5)	74 (12.8)	147 (13.2)
Emotional and physical	22 (4.1)	32 (5.5)	54 (4.8)
Physical and sexual	1 (0.2)	2 (0.4)	3 (0.3)
Emotional and sexual	-	2 (0.4)	2 (0.2)
Emotional, physical and sexual	3 (0.6)	6 (1.0)	9 (0.8)
Abused child	119 (22.1)	145 (25.2)	264 (23.7)
Non-abused child	420 (77.9)	431 (74.8)	851 (76.3)
Total	539 (100.0)	576 (100.0)	1115 (100.0)

Discussion

Between 1985 and 1993, the number of cases of child abuse in the United States increased by 50 percent. In 1993, three million children in the United States were reported to have been abused. Thirty-five percent of these cases of child abuse were confirmed.⁴ According to the 1996 National Committee Report, 57% of cases were neglect and emotional abuse, 25% physical, 11% sexual and 7% was other types of abuse.⁴

In studies, it has been determined that emotional abuse is frequently seen with other types of abuse and can reach up to 85.0%. The prevalence of emotional abuse in our study is concordant with literature.^{4,6,14,15,27}

In a study carried out at Zimbabwe primary schools, physical abuse rate in schools in 1995 was 34.8%.⁸ In a study in Egypt, 37.0% of children reported being beaten or tied up by their parents and 26.0% reported physical injuries such as fractures, loss of consciousness or permanent disability as a result.⁹

In a recent study in the Republic of Korea, two-thirds of parents reported whipping their children and 45.0% confirmed that they had hit, kicked or beaten them.¹⁰

In a study in Romania, it was found that 4.6% of children reported suffering from

severe and frequent physical abuse, including being hit with an object, being burned or being deprived of food. Nearly half of Romanian parents admitted beating their children 'regularly' and 16.0% beating their children with objects.¹¹

In Ethiopia, 21.0% of urban school children and 64.0% of rural school children reported bruises or swellings on their bodies resulting from parental punishment.¹²

In a study carried out in 8 cities of Turkey in 1980-1982 among 16100 children, the prevalence of child abuse was found as 33.0%. The prevalence changes with geographical region; 14.0% in the Western and 54.0% in the Eastern Anatolia.⁵

In a study at pediatric psychiatry clinic in Turkey, the prevalence was 36.1%; 58.0% physical, 21.5% emotional abuse and 20.5% both. Sexual abuse could not be questioned. There was significant relationship between socioeconomic status and child abuse, paternal occupation and abuse. The main risk factors were physical illness of the child, bad-tempered child, incompatibility in the family and the psychological illness of the mother. One fourth of admissions were for low school performance supporting the idea that the low school performance was related to abuse.^{4,6,8,10}

Table 4: Details of abused children

	Abused children (n)	(%)	Non-abused children (n)	(%)	p
Type of personality					
Extrovert	85	32.2	318	37.4	
Introvert	83	31.4	242	24.4	
Aggressive	11	4.2	12	1.4	
Compliant	85	32.2	279	32.8	0.023
Feeling insecure					
Yes	195	73.9	779	91.5	
No	27	10.2	24	2.8	
Sometimes	42	15.9	48	5.7	0.001
Idea of leaving home					
Yes	12	5.2	2	0.5	
No	218	94.8	439	99.5	0.001
Idea of suicide					
Yes	31	13.1	22	5.0	
No	205	86.9	422	95.0	0.0001
School performance					
Bad	21	8.0	36	4.2	
Moderate	52	19.7	115	13.5	
Good	155	58.7	538	63.2	
Wonderful	36	13.6	162	19.1	0.002
Expectations for future					
Yes	221	90.6	698	98.2	
No	23	9.4	13	1.8	0.0001

In a study in 3725 primary school students in Elazig city, Turkey, 74.0% of the students (51.7% boys, 33.9% girls) expressed exposure to physical violence at least once in their lives, 43.4% occasional, 33.1% once or twice a week, 2.1% every day physical abuse.¹³ During the last year, 17.3% of students were exposed to physical abuse by mother, 13.9% by father, 19.8% by teacher.

The prevalence in our study is consistent with national and international studies.⁴⁻¹³

A study Quasem et al¹⁴ from Kuwait showed that 86% parents believe in the importance of physical punishment in child discipline.

In a study from Turkey, children declared the rate of physical punishment as 61.0% for their mothers and 40.0% for fathers whereas mothers' declaration was 9.0% and fathers' 3%.¹⁵ In another study by Aral et al¹⁶ from Turkey, it was determined that 65.7% of children were exposed to physical abuse by parents. The identity of the abuser in our study is consistent with national and international studies indicating that violence is considered as normal by the parents.

Although national and international studies^{13,28} state that physical abuse is higher

in boys than girls we could not find a significant difference.

In a study from Turkey, it was found that abuse types were distributed as; 85.0% emotional, 66.0% physical and 38.0% sexual. Our rates are quite lower than rates in the literature.

Low education and SES, psychological problems of parents, serious incompatibility in family, violence in family, alcohol use of parents, unemployment and separation were stated as risk factors.^{4,6,12,29}

In Finland, 7.6% of girls and 3.3% of boys stated experiencing sexual abuse.³⁰ In a study in Geneva it was %11.0 for boys and 2.5% for girls.³¹ Our result for sexual abuse rate being lower than other studies may be due to traditional structure of Turkish society and underreporting.

In our study, maternal occupation was related to abuse suggesting that it may be due to poor social support.

There are few studies on child abuse in our country. Further studies are needed. Individual, social and global preventive interventions are important for child abuse. Family physicians have great role in diagnosing and preventing child abuse.

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Prevalence and Predictors of Hypertension in Primary School Students: A population based study in Aydin, Turkey

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Abstract

Background and aim: The presence of cardiovascular risk factors in childhood and adolescence may lead to cardiovascular disease in adulthood. The aim of this study was to determine the prevalence and predicting factors of hypertension in primary school students of a Western city, Aydin.

Study Design and Methods: A total of 1348 primary school students (1st-8th grade) between 6-15 years old were randomly included in the study. Blood pressure measurements were obtained and hypertension was diagnosed using the tables provided by the Task Force Report on high blood pressure- specific to gender, age and height percentile- in children and adolescents. Weight and height were measured using standard procedure.

Results: The prevalence of hypertension in primary school students was 13.4%. Hypertension, overweight and obesity were significantly higher in children with higher socioeconomic status ($p < 0.001$). There was a significant increase in systolic and diastolic blood pressure (SBP and DBP, respectively) with increase in BMI percentile ($p < 0.001$, for both). Of students, 1123 (83.3%) stated they did not have any blood pressure measurement before.

Conclusion: Childhood hypertension remains as an important child health problem and it is associated with overweight. Early identification of children with hypertension is possible by routine blood pressure monitoring during well-child visits.

Key words: Adolescent, children, hypertension, obesity, overweight, prevalence.

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Introduction

Cardiovascular diseases are one of the most common health problems and one of the leading causes of death in adults. The presence of cardiovascular risk factors in childhood and adolescence may lead to long term burden on cardiovascular system which ultimately results in cardiovascular disease and mortality in adulthood.¹

Obesity which is related to cardiovascular diseases reached epidemic levels in many countries.² It is remarkable that the prevalence of childhood obesity has also increased over the last decades.³

Hypertension in childhood may become more prevalent than previously reported and an epidemiologic shift may be seen from secondary hypertension to primary hypertension in relation to increasing prevalence of childhood obesity.^{3,4} Many studies have investigated the interaction between overweight, hypertension and ethnicity.^{3,5} The prevalence of overweight and hypertension in childhood has increased among ethnic minorities such as Turkish children living in Netherlands.^{3,6} There is a recent study conducted in older children in central Anatolia.⁷ However there is no population based study about childhood hypertension in Western Anatolia where Mediterranean life style is more predominant.

The aim of this study is to determine the prevalence and predicting factors of hypertension in primary school students of a Western city, Aydin. .

Material and Methods

This cross-sectional, descriptive, population-based study was implemented

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between January-November 2005. The study was approved by Turkish Ministry of Education and Local Ethics Committee. Informed parental consent was obtained.

Study Design and Population

The sample size was calculated as 1350 children on prevalence of 5%, $d=0.05$ at a confidence level of 95%. A design effect of 2 was used to allow for multistage sampling.⁸

A three stage probability design was used to select a representative sample of primary school children in Aydin between 1st and 8th grades. Stage one involved to stratify schools by socioeconomic status (low, medium, high). Total population of schools in each socioeconomic status (SES) was calculated to have a balanced distribution for SES and gender. In the second stage, a stratified random selection was performed for total of seven schools from each SES. In the third stage, one in three students was randomly selected from each classroom. A questionnaire including demographic information was filled out for each student. Information was obtained from school records and from children themselves.

Blood pressure, weight and height measurements

Mercury sphygmomanometer was used to measure arterial blood pressure. Bladder with its width covering at least two thirds of the upper arm and length exceeding 80% of the biceps circumference was selected for each student. After 10 minute of rest in a quiet room, three blood pressure and heart rate measurements were taken at 15 minute intervals while student was seated. The average of three measurements was used in subsequent analysis.

Students with elevated blood pressure (≥ 95 th percentile) were determined using the tables provided by the Task Force Report on high blood pressure-specific for gender, age and height percentile-in children and adolescents.⁹ Children with an average of three measurements over 95th systolic blood pressure (SBP) and/or diastolic blood pressure (DBP) percentile considered as hypertensive.

Weight was measured in light clothing using a beam balance and height with a stadiometer. Body mass index (BMI) was calculated as weight (kg)/height (m)². Determination of overweight and obesity was obtained by the 85th and 95th percentiles of BMI for age, respectively, as proposed by Centres for Disease Control (CDC) in 2000.¹⁰ Growth curves for healthy Turkish children were used to find the age-specific height and weight percentile for each student.¹¹

Table 1: Demographic characteristics of students (n=1348)

Demographic characteristics	n (%)
Gender	
Girls	683 (50.7%)
Boys	665 (49.3%)
Parental education	
Mother	
Illiterate	146 (10.8%)
Basic reading-writing skills	174 (12.9%)
Primary school	516 (38.3%)
Secondary school	98 (7.3%)
High school	330 (24.4%)
University	84 (6.2%)
Father	
Illiterate	35 (2.6%)
Basic reading-writing skills	156 (11.6%)
Primary school	477 (35.4%)
Secondary school	131 (9.7%)
High school	387 (23.7%)
University	162 (12.0%)
Occupation	
Mother	
Housewife	1065 (80.4%)
Labourer (unqualified)	63 (4.7%)
Teacher	47 (3.5%)
Government officer	33 (2.4%)
Retired	13 (1.0%)
Physician	10 (0.7%)
Other (housekeeper, tailor, etc.)	117 (8.9%)
Father	
Labourer (unqualified)	304 (22.6%)
Tradesman	204 (15.1%)
Government officer	83 (6.2%)
Unemployed	81 (6.1%)
Security officer	69 (5.1%)
Retired	61 (4.5%)
Teacher	46 (3.4%)
Farmer	30 (2.2%)
Engineer	26 (1.9%)
Deceased	20 (1.5%)
Other (shepherd, hawker, mechanic, etc.)	424 (32.3%)
Body mass index	
< 85 th percentile	1127 (83.6%)
85 th -94 th percentile	140 (10.4%)
≥ 95 th percentile	81 (6.0%)
Socioeconomic status	
Low	289 (21.4%)
Medium	795 (59.0%)
High	264 (19.6%)

Statistical Analysis

Descriptive statistics are presented as percentages, means and standard deviations. χ^2 analyzes was used to define associated factors with hypertension and multiple logistic regression analysis was used to assess the possible influence of variables as confounding factors in determining hypertension. Correlation between blood pressure and BMI percentile values were analyzed by Spearman's rank correlation coefficient. One way ANOVA was performed for between-group

comparisons of categorical and continuous variables. P value <0.05 was used to indicate statistical significance. Data were analyzed using the Statistical Package for the Social Sciences program version 13.0 (SPSS 13.0).

Results

A total of 1408 primary school students were screened for hypertension. Sixty children were excluded from the study as four students had heart disease and 56 children had incomplete data. A total of 1348 primary school students were included in the study.

Mean age was 10.5 ± 2.4 years. The majority of students were from middle socioeconomic status. In pre-school period, 1142 (85.2%) children were taken care of by their mothers and the majority of mothers were housewives. Other care sources were day-care, grandmother, father and baby-sitter. Demographic characteristics of children are shown in Table 1.

It was remarkable that 1123 (83.3%) students did not ever have their blood pressure measured before.

Mean BMI percentile was $48.56\% \pm 29.79$ and mean BMI was $17.78 \text{ kg/m}^2 \pm 3.32$. Two hundred and twenty one (16.4%) students had $\text{BMI} \geq 85^{\text{th}}$ percentile. Among this group 81 (6.0%) students had $\text{BMI} \geq 95^{\text{th}}$ percentile.

Mean SBP increased by age ($p=0.03$) whereas there was no significant change in DBP by age ($p>0.05$). There was significant increase in both SBP ($r=0.323$, $p<0.001$) and DBP ($r=0.110$, $p<0.001$) with increase in BMI percentile. Mean SBP and DBP for each BMI percentile was shown in Figure 1.

One hundred and eighty one children had high blood pressure and the prevalence of hypertension in primary school students was 13.4%. Details of hypertensive and normal children with regard to gender and socioeconomic status were shown in Table 2. There was no significant relationship between hypertension and gender. Results of logistic regression analysis showed that, obese and high SES students ($p<0.001$, $p<0.001$, respectively) had higher rates of hypertension. Forty-five (24.8%) of the total 181 hypertensive children were either overweight or obese.

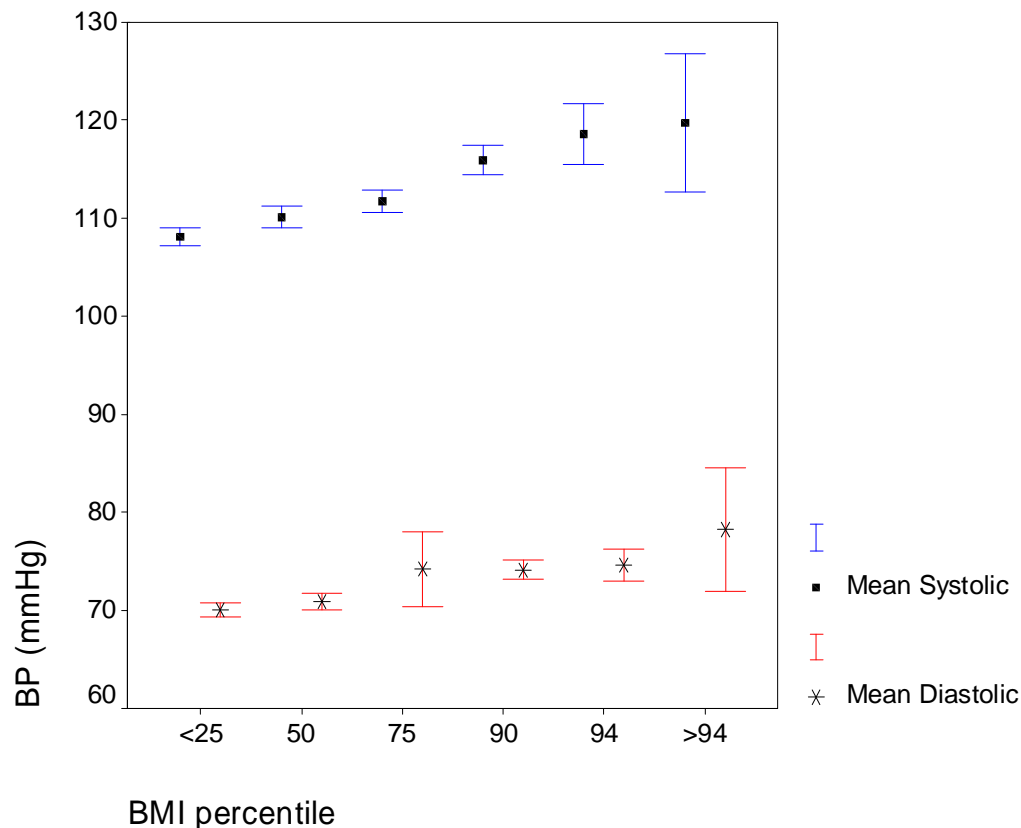


Figure 1: Mean systolic and diastolic blood pressures for each Body Mass Index (BMI) percentile.

Table 2: Blood pressure groups, gender and socioeconomic status of students (n=1348)

	High Blood Pressure n(%)	Normal n(%)	p value
Gender		579	
Girls	104 (15.2)	(84.8)	0.06
Boys	77 (11.6)	588 (88.4)	
Socioeconomic Status			<0.001
Low	37 (13.0)	253 (87.0)	
Medium	73 (9.2)	721 (90.8)	
High	71 (26.9)	193 (73.1)	
Total	181 (13.4)	1045 (86.6)	

Hypertension and overweight and obesity were significantly high in children from high SES. Table 3 shows mean values for BMI and blood pressures and proportion of overweight or obese according to SES.

Discussion

Since clusters of multiple cardiovascular risk factors persist strongly from childhood to adulthood, screening children has vital importance in detecting the risk factors. Obesity is associated with higher blood pressure levels, various adverse biochemical, physiological, and psychological effects, many of which have the possibility of tracking into chronic disease risk factors in adulthood.¹² Studies have shown cardiac hypertrophy and increased left ventricular mass to be associated with higher levels of blood pressure, which is an independent risk factor for future cardiovascular events in adulthood.¹

Even though age remains a major determinant of vascular changes, the data from Bogalusa Heart Study showed that approximately 60% of overweight 5-10 years old children had one cardiovascular risk factor, such as high blood pressure.^{1, 13}

Hypertension prevalence in screening studies of children and adolescents in various

age groups have been recently reported in a range between 4.5% to 23.9%.^{3,7,14-16} As an important predictor of childhood hypertension, obesity in children cannot be classified as a Western problem as it is shared by many industrialized areas and many developing countries.^{12,17-20} Rapidly increasing prevalence of overweight and obesity even among pre-school children had been reported from developing countries.²¹ Overweight and obese children have significantly higher blood pressure values than normal weight children. Additionally in overweight and obese subjects the number of patients with blood pressure values below the 50th percentile was found to be lower.²² Atabek et. al. reported in a hospital-based study that hypertension prevalence in obese Turkish children was 37.0%.²³ Likewise, Sorof et. al. reported that even though the unadjusted relative risk of hypertension was higher in some ethnic groups, after adjustment for overweight, ethnicity was no longer predisposing factor for hypertension. Overweight was the strongest predictor of hypertension in children.³ Our findings were consistent with the literature.

Girls have been affected from overweight and obesity more than boys, and girls at the 85th percentile of BMI have begun to show a marked increase of obesity after 9 years of age.¹ Unlike to overweight and obesity, gender was not found to be related to blood pressure level in children.²⁴ We did not find any gender difference with hypertension and overweight and obesity.

Socioeconomic status is another interest of point for childhood hypertension. Conflicting data exists on the relationship between obesity, hypertension and socioeconomic status. Lower socioeconomic status was reported as an important predictor for increased prevalence of overweight and hypertension in children in developed countries.^{19,25} However, contrary was reported from developing countries.¹⁷ Likewise, high SES was associated with hypertension, overweight and obesity in our study.

Table 3: Mean±SD for Body Mass Index (BMI), BMI percentile, blood pressures and overweight or obese according to socioeconomic status (SES)

SES Category	n (%)	BMI (kg/m ²)	BMI Percentile (%)	Overweight or obese n (%)	Systolic Blood Pressure (mmHg)	Diastolic Blood Pressure (mmHg)
Low	289 (21%)	17±3	47±28	37 (13%)	112±9	72±7
Medium	795 (59%)	17±3	46±29	110 (14%)	110±10	72±7
High	264 (20%)	18±3*	58±29*	74 (28%)*	116±11*	74±7**

* p<0.001

**p<0.01

Early identification of children who are at risk of hypertension is important in preventing adult hypertension. Childhood hypertension can be identified easily by yearly measurements of blood pressure in all children over 3 years old in a routine paediatric well-child visit as recommended by Task Force on Blood Pressure Control in Children.⁹ Primary care centres are easily accessible and widely used facilities for routine paediatric well-child visits. However, it is unfortunate that primary care physicians are not sufficiently detecting, monitoring and managing hypertension in children.¹ Furthermore, with regard to obesity, an important predictor of hypertension, although the majority of nurse practitioners were aware of childhood obesity prevention guidelines, most were not consistently using BMI for age or monitoring children at increased risk for obesity.²⁶ In our study, it is remarkable that, %83.3 of children between 6-15 years old did not have any previous blood pressure measurement. New strategies should be developed in primary care settings and school health centres to prevent childhood hypertension.

Prevention of disease in childhood is one of the most important goals of primary care, and success in prevention ultimately will result in reduction of diseases in adulthood. Primary care physicians and school health workers should play an important role in childhood obesity and hypertension. They should join forces between disciplines to mount an effective public health campaign in the prevention and treatment of these two important public health priorities.

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Case Report

Management of an Undifferentiated Problem in Primary Care

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Abstract

Headache-free migraine is a condition with symptoms of migraine aura, such as visual problems, nausea, vomiting, constipation, or diarrhea without any headache. Family physicians with specification in continuity of care are in the right position to evaluate such undifferentiated illnesses.

Key words: migraine, primary care, headache.

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Introduction

Headache-free migraine is a condition with no headache, but is associated with other migraine symptoms, such as visual problems, nausea, vomiting, constipation, or diarrhea. Migraine is described as a familial disorder characterized by recurrent headaches that are variable in intensity, frequency, and duration. Attacks are usually unilateral but can also be bilateral and accompanied by photophobia, phonophobia, nausea, and vomiting. Some migraines are preceded by, or are associated with, neurological and mood disturbances. All of the above characteristics, however, are not necessarily present in each attack, or in each patient.

Case Report

A 22 year-old boy was admitted to our family medicine clinic with a one-year history of periodic visual disturbance. He had accompanying dizziness problem. The first attack of visual disturbance occurred one year ago while he was studying for an exam.

It started as a bilateral, small, central circular distortion, and then enlarged until it grew out of the patient's visual field leading to temporary blindness over a 20-minute period. He visited an ophthalmologist.

Tests for vasculitis and coagulopathy (complete blood count, partial thromboplastin time, erythrocyte sedimentation rate, rheumatoid factor, antinuclear antibody titer, homocysteine level and serum protein electrophoresis) were normal.

Visual field test, corneal tomography, cranial MRI (Magnetic resonance imaging) and noninvasive carotid and retinal ultrasound Doppler and echocardiography were performed in order to rule out cerebral, vascular and cardiac causes. All results were in normal range and the etiology of his complaints could not be explained and this caused patient dissatisfaction. He did not have any problems until three months ago. During the last three months he had four attacks. All episodes were similar in nature, with an expanding scintillating scotoma and without subsequent headache. Except for the last one, all attacks occurred while he was studying. There was no history of paresthesia, olfactory or auditory disturbance, nausea, vomiting, or preceding headache. He wore eyeglasses for myopia. He had no medication, no illicit drug use, and was otherwise healthy except for a history of irritable bowel syndrome. On the other hand, there was a family history of migraines both in his mother and his aunt. Physical and neurological examinations were within normal limits. He was anxious about his health and future career. He had fear of

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blindness. His anxiety increased during the last year. Our diagnosis was migraine aura without headache. Since his episodes of scotoma occurred only sporadically and seemed to be associated with anxiety, we prescribed him a SSRI (Selective Serotonin Reuptake Inhibitor). He was followed up for one year and was encouraged to keep a diary of visual phenomena, paying particular attention to activity, diet, and associated symptoms. During the follow-up he did not have any recurrence of attacks.

Discussion

The terms headache-free migraine or migraine equivalents have been replaced within the Classification and Diagnostic Criteria for Headache Disorders, Cranial Neuralgias and Facial Pain by the Headache Classification Committee of the International Headache Society (1). These previous designations have been replaced by the term migraine aura without headache, which describes migrainous events exclusively manifested by one of the neurological disturbances that usually precede or accompany the headache of classical migraine (2).

While headache-free migraine would fall into the category of migraine aura without headache, episodes of migraine aura without headache can occur in individuals with a history of classic migraine. Approximately 20% of migraineurs may experience acephalgic attacks of migraine at one time or another (3).

In the absence of the classic headache, the patient's predominant visual phenomenon must be well described and chronicled in order to avoid diagnostic errors. Thus, when a patient is unable to provide an accurate accounting, the clinician is compelled to search for other causes of photopsia: environmental agents, or specific abnormalities of the eye, including problems with the cornea, lens, vitreous body, and retina, or abnormalities of the brain or cardiovascular system. All differential diagnostic tests were performed in our patient and were in normal ranges.

The diagnosis of migraine aura without headache should be made only after the possibility of organic disease has been systematically excluded through a detailed patient history and examination. The diagnosis of migraine aura without headache can be entertained if the patient has the major migraine characteristics, including migration of scintillating scotoma, recurrences of similar episodes of 15 to 30 minutes' duration, a history of similar spells with headache, an eventually benign course, and a normal

physical, ophthalmologic, and neurological examination (1).

Patients require information for their health problems and its treatment and they desire patient-centered communication. Learning about patients' expectations can be educational for care providers, because it helps them to clarify their own expectations and to set priorities for learning and improvement (4).

Time and the opportunity for continuing care are very powerful diagnostic instruments in the hands of family physicians (FPs) (5). A doctor cannot overcome undifferentiated and unorganized health problems unless he follows-up his patients for a long time. That was the reason for our patient being encouraged to keep a diary of visual phenomena, paying particular attention to activity, diet, and associated symptoms. Family physicians are frequently consulted by patients in the early and undifferentiated stages of disease. One of the reasons of undifferentiating is self-limiting health problems like our case. Uncertainty is a part of daily life in family practice.

As family physicians, we use as diagnostic methods "less technology" but "more time" than the other specialists. We should define the patients' expectations to achieve patient satisfaction. We have more chance than the other specialists to manage undifferentiated problems.

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