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ENURESIS; RISK FACTORS AND FAMILY RESPONSES

ENUREZİS; İLİŞKİLİ FAKTÖRLER VE AİLELERİN YAKLAŞIMLARI

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ABSTRACT

Objective: The aim of this study was to determine the frequency of nocturnal enuresis in school children, investigate the possible risk factors, and to explore the families' perceptions and attitudes about the problem in a socially disadvantaged area in Istanbul.

Materials and methods: The study included 252 students. Of all students sixty (23.8 %) had enuresis. These students and their mothers constituted the study group. The same number of students without enuresis matched by age, sex, mother's education and number of siblings constituted the control group. In depth interviews were carried out for the students with enuresis and their mothers.

Results: The enuretic students were significantly more likely to be immigrant, to have toilet-training problems, and to have experienced corporal punishment. The enuretic children also had a higher intake of fluids. Of all students 77% had a family history of enuresis. According to the findings of the study more children than mothers reported that they were distressed and embarrassed by the condition. Gathering information during in depth-interviews was difficult because of the secrecy involved and the reluctance of the children and parents in admitting the problem.

Conclusion: Our findings showed that enuresis can be a marker of stress which needs to be addressed. Families should be informed about how to handle this situation without disturbing the children's self- esteem. In developing countries where health care infrastructure is not well established school health service can be an important tool to identify and help children with enuresis.

Key words: Enuresis, school, children, management of enuresis

ÖZET

Amaç: İstanbul'un düşük sosyoekonomik koşullu bir bölgesinde yaşayan okul çağı çocuklarında enürezisin sıklığını belirlemek, ilişkili faktörleri, ailelerin bu konuya yaklaşımlarını belirlemek.

Gereç ve yöntem: Çalışmaya dahil olan 252 öğrencinin 60' ında (%23,8) enürezis tespit edildi. Enürezisi olan çocuklar ve anneleri çalışma grubu; aynı sınıfı paylaşan, yaş, kardeş sayısı ve anne öğrenim düzeyleri benzer olan 60 öğrenci ve annesi de kontrol grubu olarak kabul edildi. Enürezisli olgular ve anneleriyle derinlemesine görüşmeler yapıldı.

Bulgular: Enürezisli olgularda göç, tuvalet eğitiminde sorun ve şiddete maruziyet belirgin olarak daha fazlaydı, ayrıca daha fazla miktarda su tüketimi vardı. Enüresisi olanların % 77 sinin ailesinde benzer hikaye vardı. Çalışmada elde edilen bulgulara göre enüresisli çocuklar annelerine kıyasla bu durumdan daha fazla endişe ve üzüntü duymaktaydı. Ailelerin çocuklarında böyle bir problem olduğunu açıklamak istememeleri, duyulması halinde çocuklarının bundan çok etkileneceklerinden endişe duymaları nedeniyle, verilerin toplanması sırasında, gizlemeye bağlı olan sıkıntılar yaşandı.

Sonuç: Bulgularımız enürezisin belirgin bir stres kaynağı olduğunu gösterdi. Aileler çocuklarının kendine olan güvenini zedelemeden bu sorunu nasıl yönetebilecekleri konusunda bilgilendirilmelidirler. Koruyucu sağlık hizmetlerinin yeterli olmadığı gelişmekte olan ülkelerde, okul sağlığı hizmetleri, bu problemi tespit etmek ve enürezisli çocuklara yardım etmek için önemli bir araç olabilir.

Anahtar kelimeler: Enürezis, okul, çocuk, enürezise yaklaşım

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INTRODUCTION

Nocturnal enuresis (bedwetting) is a socially disruptive and stressful condition which affects around 15-20 % of five year olds, and up to 2% of young adults (5).

Enuresis is defined as involuntary or unintentional urination in children at an age and developmental level when achievement of bladder control would be expected. Voiding into the clothing or bed occurs repeatedly (at least twice a week for at least 3 consecutive months). Diurnal enuresis is wetting that occurs during the day, and nocturnal or sleep enuresis refers to involuntary urination that occurs during the night. The term primary enuresis is used for children who have never achieved sustained dryness, and secondary enuresis is used for urinary incontinence which recurs after 3-6 months of dryness. Monosymptomatic nocturnal enuresis means that nighttime wetting is the only complaint. Children who experience urgency, frequency, dribbling, or other symptoms have polysymptomatic enuresis (1). The prevalence of nocturnal enuresis has been difficult to estimate because of variations in its definition and social standards

In the DSM-IV-TR enuresis is defined as the repeated voiding of urine into the clothes or bed at least twice per week for at least three consecutive months in a child who is at least 5 years of age (4). The International Children's Continence Society has recommended the following standardization of terminology which reads that nocturnal enuresis is the involuntary loss of urine that occurs only at night (13).

In the school period, which is usually the child's first non-family social enviroment, enuresis is frequently kept a secret by the child and his/her family, to keep school friends from teasing the child. This secrecy can make accurate information on this subject hard to obtain. Therefore we planned an investigation to analize enuresis, which can be an important problem for both children of school age and their parents.

The aim of this study was to identify the frequency of nocturnal enuresis in school children, possible risk factors and to investigate family perceptions and methods of trying to manage the problem.

MATERIAL and METHODS

This descriptive study, including some case-control aspects, was carried out in April 2002 in a primary school in Istanbul attended by children from low socioeconomic groups. Also an institutional approval was obtained. After approval a questionnaire on bladder control was given to all the students (n=273) in the first and second grade by their teachers in order to be conducted to their parents. Twenty one of all parents did not accept to fill the questionnaire. Investigators (S.A) helped the illiterate parents to fill the questionnaire if needed.

All students whose parents gave a "yes" answer to the question, "Has your child ever wet his/her bed during the last 6 months at least once a week?", constituted the case group (n=60). Also an equal number of students without enuresis, matching the study group by age, gender, mother's educational level and number of siblings, were included in the control group. The remaining 132 students without enuresis were excluded. As it was difficult for the fathers of these children to come during working hours for interview and the mothers more frequently visited the teachers, only the mothers were asked to come to school via an informative note or other students' parents. Data on the demographic and socio-economic characteristics of the fa-

Table 1. Socio-demographic Features of Children with Enuresis (study) and Control Groups.

	Study		Control		x^2
Gender	**N**	**%**	**N**	**%**	
Female	36	60.0	35	58.3	0.034
Male	24	40.0	25	41.7	
Birth place					
Istanbul	47	78.3	56	93.3	5.551*
Outside Istanbul	13	21.7	4	6.7	
Corporal punishment					
Present	23	38.3	12	20.0	4.881*
Not present	37	61.7	48	80.0	
Toilet training problem					
Yes	13	21.7	5	8.3	4.183*
No 47	78.3	55	91.7		
Daily fluid intake					
1-3 glasses	16	26.7	29	48.3	8.179*
4-7 glasses	32	53.3	27	45.0	
7 and higher	12	20.0	4	6.7	

** $p < 0.05$*

milies, any use of corporal punishment, any toilet training problem, and the amount of daily fluid intake were also gathered through the questionnaire. Interviews were carried out face to face. The mothers of those children whose screening suggested enuresis were invited to the school in order to interview with investigators and complete a second questionnaire which included, family history, the frequency of any daytime wetting, abnormal urine flow, urinary tract infection and any medical or non-medical attempt to treat, as well as the parents' and the child's own concerns about this problem. The students who were born outside Istanbul, the biggest city of Turkey, were mentioned as immigrant.

The data regarding mother's occupation was analysed using the Fischer's exact test. All the other data were analysed using the Pearson c2.

Table 2. Family Approaches to The Management of Children with Enuresis (n=60).

	Yes
Awaken child to void	50
Diaper	24
Reduce fluid intake	40
Forbid overnight stays away from home	11
*Limit intake diet	12
Herbal remedies	1
**Medications	5
***Punishment	26

** Some foods thought to be more likely cause enuresis*
*** Usually self prescribed or obtained from others*
**** Corporal or noncorporal*

RESULTS

Of all students 21 (7%) did not return the questionnaire. The study included the 252 students whose families filled out the first questionnaire. Of these students, 132 (52%) were female. All were between 7-10 years of age.

Of these 252 students 60 (23.8%) were identified as having enuresis. There was no significant difference between the study and control groups in terms of age, gender, education level of parents, mother's age, parents' occupations, birth order of child, difficulty in waking up, timing of toilet training and nutritional status. The incidence of nocturnal enuresis was statistically higher in the children of immigrant families, children who had encountered problems during toilet training, those who were exposed to corporal punishment and those with a higher intake of fluids (Table 1). Most of the children reported that they found this condition upsetting and embarrassing but seemed to feel unable to correct it.

We found that 26 (43%) families had applied some sort of force on the child, 17 by scolding and 9 by striking him/her. A small number of parents reported that when the family would stay overnight away from home and they had promised a reward if no bedwetting occurred, their children did not wet the bed. These parents then suspected that their children were wetting the bed on purpose. One mother stated that her child, who was given a new bed as a gift, prayed not to wet the bed each night. She shared her pleasure that this seemed to have decreased the incidence of the wetting.

Some mothers had given the child the task of changing the wet sheets and clothing every morning. Others had forced their children to go to school wearing their wet clothes as a punishment.

Only a few families consulted health care professionals for help with the nocturnal enuresis. Their reasons for not seeking medical help were that they thought the problem would go away by itself, they had financial concerns, and that they had heard medications for enuresis would cause infertility. Some families reported waiting because they had been told by physicians that the problem would eventually solve itself. Some tried to manage the enuresis using methods they invented themselves or heard from others (Table 2).

In the present study, we confirmed a family history in 46 (77%) of the subjects. There was a past history of enuresis in one parent of 17 subjects; both parents of 5, siblings of 13, and in first degree relatives (uncle, aunt, cousin) of 24. Unfortunately this question was not addressed in the control group.

DISCUSSION

Although there are numerous studies on the prevalence of enuresis, the present study is one of the few studies which also addresses risk factors and the attitudes of the families of school age children with this problem. Since enuresis is usually an embarrassment for both the child and the parents, understandably it is hard for them to openly admit to the problem. Thus, it is nearly impossible to collect completely accurate data about its frequency.

Conducting studies on enuresis among school age children is made difficult by the reluctance of children to talk about their problem in a foreign social environment, where they fear they might be heard by other children. Besides the data obtained from the initial 252 screening forms in this study, there were several families who had similar concerns about privacy and who at first refused, but later agreed to participate in the study. They had feared that revealing the enuresis problem might affect their child if he/she realised the secret had been shared. It was found that parents were more likely to give an honest report during a face to face conversation than when filling out a questionnaire. Thus a conversational approach may be more likely to produce accurate data than a written form.

In an epidemiological study carried out by Gur et al on 1576 school children aged between 6 and 16 years in Istanbul, the prevalence of enuresis was reported to be 12.4% (6). Oge reported a similar prevalence (11.6%) (9). Mithani, et al found the frequency of enuresis among school children in Karachi to be 9.1% which is similar to that reported in European and Asian countries, including

Korea and Taiwan (8). The present study was carried out in a school attended by many children whose families were of low economic status and who had recently migrated to the city from much smaller towns. The prevalence of enuresis found in this study was higher (23.8%) than that found in other studies done in Turkey and the world. This difference may be related to characteristics of the families or possibly to the rather broad definition (six months) of enuresis used in the present study.

The literature includes various definitions of enuresis. In DSM IV enuresis is defined as involuntary voiding at least twice per week for at least three months (4). Other investigators defined enuresis as nighttime wetting at least twice a month (2). This variation in definition causes some difficulty in comparing the studies. The definition given by Carol Berkowitz is, voiding into the bed or clothing occuring repeatedly (at least twice a week for at least 3 consecutive months) (1)

According to Oge et al, primary enuresis was defined as bed- wetting at least once a week in a child who had never had nighttime bladder control for a period greater than six months (9). In the present study, similar to the findings of others (7, 15), only 15% of the enuretic children had secondary enuresis.

The frequency of enuresis has been found to be greater in children undergoing psychosocial stress and in those living in socially disadvantaged circumstances (10). An important related finding in the present study was that corporal punishment was used more frequently in the families with enuretic children than in the controls. It would be interesting to see if further investigation upheld this finding, and if so, to investigate the possible presence of a cause and effect relationship.

In this study, there were no correlations with gender, mother's age, number of children in the family, and whether the mother worked outside the home. However, we thought that it could be beneficial to conduct wider studies of enuresis in areas where the educational level is low, social assurance is lacking, and immigration is common, as enuresis is frequently encountered in such areas. One could investigate the possible value of protective and preventive measures and whether the stress of immigration and domestic violence that a child may face within the family is related to the incidence of enuresis. Such families may unknowingly aggravate the problem through ineffective approaches and neglecting to seek treatment for the children, which may increase the negative role of enuresis in the child's life.

In this study, the enuretic group included four times more children, who had migrated to Istanbul from other towns than the control group. This difference was statistically significant. This factor has some correlations with the incidence of enuresis in at least one other study. This was a study carried out in Holland to assess the medical care needs of children from other countries whose families had taken refuge in Holland. They found that among refugee (migrant) children several psychosocial problems were common including hyperactivity, feeding problems, difficulty in sleeping and enuresis (12).

According to an-eight-year prospective study on 1265 children, carried out by Fergusson et al (3), it was found that urinary control in children was gained 1.5 years later than in normal children when there was a history of enuresis in either parent or any sibling of the child had a history of enuresis; thus family history was seen to be an important factor gaining bladder control. Akis and co-workers have found that a delay in toilet training may increase the risk of enuresis by 3 fold. In the present study children with and without enuresis who were toilet trained before age 2 were in the majority, and there were no statistically significant difference between groups. On the other hand, there were more problems with toilet training in children with enuresis than in those children without enuresis, and this difference was statistically significant. However, since the type of problems the parents had during toilet training were not questioned in detail, we do not know exactly which problems may be related to the enuresis.

In a longitudinally designed study performed on 11- 12 year old school children in England, no significant correlation was found between daily water consumption and enuresis. (11). On the other hand, there are studies which mention that enuresis is more frequent among children who take in excess fluid at night. In the present study, 20% of the children with enuresis and 6,7 % of the children without enuresis had a daily fluid intake of 7 glasses or more and this difference was statistically significant.

According to the literature, 70- 75% of all enuretics had first degree relatives who were enuretic or had been enuretic at some time in the past. (14). In an epidemiological study performed in Turkey, a family history of enuresis was found in 40.79% of children with enuresis, and 9.5% in those without enuresis (9). In the present study, 77% of the students with enuresis had a family history.

Taking into account the subjective conditions we have noted surrounding a problem like enuresis, if one is to obtain full information, it is important to make the families feel comfortable during the interviews. In the pre-school period, a child's relationships are mostly by limited to the home. However in school, the teacher becomes perhaps the first source of help to a child. Thus classroom teachers and guidance counselors may have a role in the early diagnosis and management of enuresis.

In this study several social factors have been shown to be related to enuresis in first and second grade school children. The problem is generally not shared with teachers or health care professionals, and the only remedies attempted are ineffective, because they are based on false information or punitive. These findings suggest that the management of this distressing problem in communities with a low socioeconomic status could possibly be improved by case- finding and provision of cost- effective medical follow up and treatment options, using a one on one conversational approach which strictly takes into account child and family sensitivities and privacy.

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