

SLEEP HABITS AND PSYCHOLOGICAL PROBLEMS IN ENURESIS NOCTURNA

H.Murat Akgül¹  Firat Erdoğan²  M.Tayyib Kadak³ 

1 Asist. Prof., MD, Department of Urology, Namik Kemal University, Tekirdag, Turkey.

2 Assoc. Prof., MD, Department of Pediatrics, Medipol University, Istanbul, Turkey.

3 Assoc. Prof., MD, Department of Child and Adolescent Psychiatry, Istanbul University-Cerrahpasa, Istanbul, Turkey.

ABSTRACT

Introduction: Enuresis nocturna (EN) is one of the most unpleasant problem in childhood. Functional problems thought to be the majority part of etiology instead of structural, medical or neurological problems. Psychological disorders, such as attention deficit hyperactivity disorder, oppositional defiant disorder or depression may be accompanying with enuresis nocturna. Internalising problems such as separation anxiety, social anxiety, specific phobia, generalised anxiety, depression, conduct disorders and attention deficit hyperactivity disorder can accompany with EN. In this study, we aimed to investigate the sleep habits and psychological disturbances in children with EN.

Method: The forty children (27 boys and 13 girls) with EN who had been admitted to Pediatrics and Urology outpatients departments and 113 (54 boys and 58 girls) age-matched healthy controls are comprised for the study. Participants received 'Strengths and Difficulties Questionnaire' (SDQ), and 'Children's Sleep Habits Questionnaire' (CSHQ).

Results: The frequency of sleep problems was 59% and 85% in the control and in enuretic groups. The total problem score was significantly higher in the EN group according to the scores of the SDQ parent-report form. The EN groups with regard to bedtime resistance, sleep-anxiety, night-waking, parasomnias, breathing-related problems and daytime sleepiness showed significantly higher scores in CSHQ comparing to control group.

Discussion: The children with EN need to be evaluated in regarding to sleep and psychological aspect.

Keywords: Enuresis nocturna, Sleep habits, Psychological problems.

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INTRODUCTION

Enuresis nocturna (EN) is a very common disorder in childhood across the worldwide. The majority of EN is thought as functional, not because of structural, medical or neurological problems [1]. Enuresis is 1.5 to 2 times more common in boys than girls. Prevalence of night wetting decreases with increasing age: 20% in 4 year olds, 10% in 7 year olds, 1%-2% in adolescents, and 0.3%-1.7% among adults [2]. It is suggested that EN is associated with emotional distress in both children and parents. 20%-40% of children with EN was reported comorbid psychological disorders, such as attention deficit hyperactivity disorder (ADHD), oppositional defiant disorder (ODD) or depression [1].

Psychosocial factors for EN had genetic and neurobiological basis. Children with secondary enuresis have both higher rates of emotional and behavioural disorders as well as stressful life events prior to the relapse [3,4]. Psychiatric diseases are 2 to 5 times more frequent in children with EN. Comorbidity rates are highest in children with enuresis ranging from 40% to 75% [5]. ADHD is the most common comorbid disorder in enuresis. In a

non-clinical sample based study, 9.4% of participants had clinically relevant ADHD symptoms at 6 years [6]. In addition to externalising disorders, internalising problems can accompany with EN. For example, it was reported that children with enuresis had separation anxiety (8.0%), social anxiety (7.0%), specific phobia (14.1%), generalised anxiety (10.5%), depression (14.2%), ODD (8.8%), conduct disorders (8.5%) and ADHD (17.6%) [7]. In this study we aimed to investigate the sleep habits and psychological disturbances in children with EN.

METHODS

The study comprised 40 children (27 boys and 13 girls) with EN who had been admitted to Pediatrics and Urology Outpatients Departments and 113 (54 boys and 58 girls) age-matched healthy controls. Clinical diagnosis for the patient group was based on history and upon physical examination. Healthy age-matched controls were recruited from the Pediatric Outpatient Department. Institutional review board approval was obtained and informed consent was signed by all patients and parents who accepted to join the study.

Participants eligible for the study received 'Strengths and Difficulties Questionnaire' (SDQ) [8], and 'Children's Sleep Habits Questionnaire' (CSHQ) [9].

Strengths and Difficulties Questionnaire- Parent Form (SDQ-PF): Child mental health problems were assessed based on parent report using validated versions of the parent-reported Strengths and Difficulties Questionnaire (SDQ) [13]. The parent version of the SDQ included a brief questionnaire divided into subscales. The SDQ was used as a structured questionnaire for screening a child's psychological problems. This questionnaire contains 25 questions that consist of 5 subscales including emotional, hyperactivity, peer relationship, conduct problems and pro-social behaviors, with 5 items in each. The sum of the first four subscales gives the total difficulty score.

Sleep Habits Questionnaire (CSHQ): The Sleep Habits Questionnaire (CSHQ) [14] is a retrospective, 33-item parent questionnaire that has been employed in several studies examining sleep behavior in young children. The CSHQ includes items exploring a number of key sleep domains and shows good validity and reliability [14]. The 33 items on the CSHQ are grouped into eight subscales: (1) bedtime resistance (comprising six items); (2) sleep-onset delay (one item); (3) sleep duration (three items); (4) sleep anxiety (four items); (5) night waking (three items); (6) parasomnia (seven items); (7) sleep-disordered breathing (three items); and (8) daytime sleepiness (eight items). All items were rated on a 3-point scale: "usually", if the particular sleep behavior occurred 5 to 7 times per week; "sometimes", if 2 to 4 times per week; and "rarely" if no or only a single instance was recorded in a given week. Scores were adjusted to reflect the fact that a higher score was indicative of increased sleep disturbance. A higher score was indicative of increased sleep disturbance. A total CSHQ score of > 42 yields adequate sensitivity (0.80) and specificity (0.72) in differentiating between children with and without clinical sleep disturbances. The Cronbach alpha coefficient was determined as 0.78, and the test-retest correlation coefficient was 0.81 [10].

Statistical Methods

According to the Kolmogorov-Smirnov test, the results from the CHSQ and CCTQ were not distributed normally, so non-parametric tests were applied. Different demographics and psychiatric symptoms were subjected to between-group comparisons using either Mann Whitney U Test or Chi-square analysis where appropriate. Spearman correlation analysis was used in continuous variables. SPSS Version 17.0 for Windows was employed in all statistical tests and a p value of < 0.05 was considered to indicate statistical significance.

RESULTS

Socio-demographic characteristics of the two groups are provided in Table 1. The median age of the children with EN and healthy control were 7(6-11) years ($p = .481$). There was significant difference between group in according to gender ($p < 0.05$). The frequency of sleep problems was 59% and 85% in the control and in enuretic groups, respectively ($p < .001$).

With respect to the scores of the SDQ parent-report form (Table 2), it was found that enuresis group had higher median scores for behavioural/conduct problems ($p = .026$), hyperactivity problems ($p = .002$) and problems regarding peer relations ($p = .015$) than controls. The total problem score ($p = .001$) was also higher in the EN .

Table 1: Sociodemographic Features of the Patient and Control Groups

	Control Group (n=113)	Enuresis Nokturna (n=40)		p
Age[Median(min-max)]	7 (6-11)	7 (6-11)	2094,5 (-,705)*	,481
Gender				
Male [n(%)]	54 (48,2)	27 (67,5)	4,404**	,036
Female [n(%)]	58 (51,8)	13 (32,5)		
Sleep Problem				
Absent [mean (SD)]	54 (47,8)	6 (15)	13,323**	< ,001
Present [mean (SD)]	59 (52,2)	34 (85)		

*: Mann Whitney U test [U (z)]; **: Chi Square test; n=number; SD: standart deviation; min: minimum; max: maximum

group. In contrast, the prosocial behaviour score was significantly higher in the control group than the EN group ($p < .001$).

The median scores of CSHQ subdomains in study groups were divided into two subgroups according to the presence of sleep problems. Table 1 shows a significant difference between groups in sleep problems according to the CSHQ ($p = .036$). As shown in Table 3, the enuresis and control groups showed differences in CSHQ scores with regard to bedtime resistance ($p = .003$), sleep-anxiety ($p = .024$), night-waking ($p = .001$), parasomnias ($p < .001$); breathing-related problems ($p = .001$), daytime sleepiness ($p = .004$) and total CHSQ problems ($p < .001$). There were no correlation between total CHSQ and SDQ subtests and total scores in EN group.

Table 2: The Comparison Between Two Groups of The SDQ Scores in The Parent-Report Form.

	MEN			CONTROL			Mann-Whitney U	Z	p
	Median	Min	Max	Median	Min	Max			
SDQ_Emotion	3	0	14	2	0	10	1594,000	-1,784	,074
SDQ_Conduct	2	0	8	1	0	7	1434,500	-2,220	,026
SDQ_Hyperactive	5	2	9	4	2	9	1407,000	-3,044	,002
SDQ_Peer	3	0	8	2	0	8	1484,500	-2,431	,015
SDQ_Prosocial	7	3	10	9	3	29	1394,000	-3,506	,000
SDQ_Total	13	6	26	10	3	31	1014,000	-3,095	,002

SDQ: Strength and Difficulties Questionnaire; ; min: minimum; max: maximum

DISCUSSION

Our study indicates that children with EN are more likely to have moderate/severe sleep problems and psychological problems compared with a control group. However, the psychological difficulties were not associated with sleep problems. Compared with controls, children with enuresis were more likely to experience problematic sleep across sleep domains as well as total problems; these sleep domains were bedtime resistance, sleep-anxiety, parasomnias, breathing-related problems and daytime sleepiness.

We found an increased rate of sleep problems in children with EN. Study investigating association between sleep habit and EN reported that higher daytime sleepiness, bedtime resistance, initiation or maintenance of sleep and sleep anxiety are present in those with enuresis [11,12]. Our finding as reported that the sleep disturbance such as daytime sleepiness, bedtime resistance,

Table 3. Comparison Of CHSQ Scores for two Groups

	MEN			CONTROL			Mann-Whitney U	Z	p
	Median	Min	Max	Median	Min	Max			
Total Sleep Problems	51	38	79	42	27	65	1067,500	-4,957	,000
Bed Resistance	10	4	17	8	3	16	1556,000	-2,950	,003
Sleep Onset Delay	1	0	3	1	0	3	2009,000	-1,353	,176
Sleep Duration	3	3	7	3	2	7	2129,000	-,636	,525
Sleep Anxiety	7	3	11	5	2	12	1722,500	-2,262	,024
Night Wakings	4	3	8	3	1	9	1489,000	-3,356	,001
Parasomnias	11	7	21	8	5	13	1084,500	-4,958	,000
Sleep Disordered Breathing	4	2	9	3	1	9	1533,000	-3,311	,001
Daytime Sleepiness	13,5	7	24	11	7	20	1270,000	-4,147	,000

sleep-anxiety, parasomnias, breathing-related problems and daytime sleepiness.

We found a increased rate of sleep problems in children with EN. Study investigating association between sleep habit and EN reported that higher daytime sleepiness, bedtime resistance, initiation or maintenance of sleep and sleep anxiety are present in those with enuresis [11,12]. Our finding as reported that the sleep disturbance such as daytime sleepiness, bedtime resistance, sleep-anxiety, parasomnias, and breathing-related problems was consistent with a previous study [13]. Sans Capdevila et al demonstrated that breathing-related problems in enuresis might be associated with atrial natriuretic peptide and antidiuretic hormone [14]. Another important finding of our study was that parasomnia scores were higher in the EN group. This could be resulted from high rate of sleep disruption and recurrent arousal. AbouKadra et al. (2013) reported higher frequencies of sleep-walking among children with enuresis [11].

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Sleep problems in enuresis may have consequences for daytime behaviour, leading to psychological problems. In addition, significant positive correlations between sleep disturbances and behavioural problems was reported [11]. However, we did not find correlation between sleep habits and behavioural problems. On the contrary to this, children with enuresis showed more psychological disturbances. This may resulted from very high sleep problem in EN rather than control group. In studies related with psychological problems in EN, it was reported neuromotor problems, attention difficulties, learning disabilities, ADHD, anxiety, depression, conduct disorder, etc. [15,16]. Finding that higher levels of emotional, conduct, hyperactivity and peer problems, but lower scores on the prosocial subscale in the present study, support for higher psychological problems comorbid with enuresis. Thus, children with EN has to be evaluated in regarding to sleep and psychological aspect.

There are several limitation of our study. Firstly, our findings were recruited from parents who assessed their children's sleep and behaviour. Secondly, we did not assessed children with clinical interview in according to psychiatric aspect. Lastly, our study sample may not reflect whole children with enuresis.

CONCLUSION

The children with EN has to be evaluated in regarding to sleep and psychological aspect. The children with enuresis showed more psychological disturbances.

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