



(RESEARCH ARTICLE)



## Clinico-epidemiological profile of children presenting with enuresis

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### Abstract

**Introduction:** Nocturnal enuresis is a fairly common problem in children. The world -wide prevalence is reported as 1.4% to 28% in children aged 6 to 12 years. In India the prevalence is between 7.6% to 16.3% being higher in 5 to 8 years of age and it decreases as age advances and is lower in 6 to 11 years age group [1,2]. It is a cause of lot of anxiety both in children as well as parents which partly stems from lack of understanding of the normal maturational process of bladder control.

**Materials and methods:** To study the clinico-epidemiological profile of children with enuresis a prospective analytical cohort study was carried out from May 2023 to October 2023. Children above 5 years of age presenting with enuresis in outpatient department were enrolled in the study. After taking informed written consent from the parents, a questionnaire regarding their symptoms was filled followed by a detailed clinical examination. The results thereafter were analysed statistically.

**Results:** maximum age group of presentation was 5 to 7 years with prevalence decreasing with increasing age. Most of the case were non- monosymptomatic enuresis with maximum children having overactive bladder. The prevalence of overactive bladder was also higher in girls than boys with a p value of 0.01.

**Conclusion:** enuresis is a common problem in paediatric age group and a cause of significant stress among children. Most case are non-monosymptomatic where proper identification of the cause can cure enuresis and relieve a lot of stress related to it.

**Keywords:** Enuresis; Mono-Symptomatic; Non-Monosymptomatic; Overactive Bladder; Constipation

### 1. Introduction

Nocturnal enuresis is a fairly common problem in children . The world wide prevalence is reported as 1.4% to 28% in children aged 6 to 12 years with an average prevalence of 7.2% [7]. In India the prevalence is between 7.6% to 16.3% being higher in 5 to 8 years of age and the prevalence decreases as age advances and is lower in 6 to 11 years age group [1,2]. According to the International Children's Continence Society, NE is defined as intermittent urinary incontinence while asleep, at least once a week and during a period of minimum three months, in children >5 years [1]. Enuresis or bladder control is a developmental process closely associated with the maturation of brain functions and the spinal and cortical level of control of bladder along with hormonal control of urinary volume. The etiology of nocturnal enuresis is therefore multifactorial ranging from urological, neurological, psychological, genetic origins. All these causes ultimately converge on three common mechanisms of nocturnal enuresis namely- polyuria, bladder overactivity and sleep

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disturbances [4,5]. Enuresis can be classified variously – it can be nocturnal, daytime or both. It can also be classified as mono or polysymptomatic depending upon the presence or absence of other associated features like holding maneuvers or bladder bowel dysfunction etc. Enuresis may also be primary if child has never been continent or secondary if it develops after a variable period of continence [6].

### *Aim*

To study and analyse the clinical and epidemiological profile of patients presenting with enuresis in out patient department of a tertiary care hospital.

### *Objectives*

- To estimate the incidence of enuresis in paediatric population presenting to the OPD in a tertiary care hospital.
- To evaluate the aetiology of enuresis in paediatric population presenting to the OPD in a tertiary care hospital.
- To understand the age wise and gender wise distribution of enuresis in paediatric population presenting to the OPD in a tertiary care hospital

### **Materials and methods**

- Type of Study: Prospective cross sectional study
- Place of Study: Base hospital Delhi Cantonment
- Period of Study: May 2023 to October 2023
- Institute Ethics Committee approvals and consent were obtained prior to the start of the study
- Sample size: 80

Statistical analysis: Plan and data were collected by using the standard tool and stored in MS excel. Basic descriptive statistics like frequency, percentage, mean, mode, median, standard deviation, and graphs were prepared using MS excel. To test the significance, the level of significance  $<0.05$  was used for parametric tests. To test the test of significance, statistical package SPSS24 was used.

#### **1.1. Plan of study**

It was a prospective cross sectional study. From May 2023 to October 2023 a total of 80 children of more than 5 years presenting to the paediatric OPD in Base hospital, Delhi cantonment with enuresis were enrolled in the study after taking consent from the parents. The parents were required to fill a questionnaire regarding the symptoms of their child. Data regarding the epidemiological factors and clinical factors were collected based in the questionnaire. Questions regarding name, age, gender, address, detailed bedwetting history which includes number of times child voided urine in bed, whether enuresis was nocturnal, during daytime or both etc were asked. Questions regarding drinking habits during the day and just before going to bed were asked. Questions about comorbidities were included. Question regarding the psychological effect of enuresis on the child were asked. A detailed examination was carried out which included anthropometry, vitals and systemic examination. The data collected was analysed later with regard to the clinical and epidemiological profile of these children.

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## **2. Results**

Among the children enrolled with enuresis, the age wise distribution showed maximum prevalence in 5 to 8 years age group, of 73.4% with prevalence decreasing with increasing age categories. Prevalence was almost the same in males and females with males having a slightly higher percentage of 59.5% and 40.5% in females. The type of enuresis was mainly primary to the tune of 87.3% and only 12,7% were secondary. While 51.9% of the children had diurnal enuresis, isolated daytime and nocturnal enuresis prevalence was 24% in each category. These findings are depicted in table 1. As shown in table 2 and 3, 50.6% of the children enrolled had bladder bowel dysfunction with maximum percentage of children having overactive bladder to the tune of 31.6%, 10.1 % had retention of urine and 8.9% had constipation. Only 2 children enrolled in our study had been diagnosed with behavioural disorders namely ADHD and anxiety.

As depicted in table 4, the prevalence of overactive bladder showed a significant correlation with gender with 80% of children with overactive bladder being males and only 20% being females and p value was 0.01.

**Table 1** Distribution of enuresis cases as per age, gender and type of enuresis

	Number (n= 80)	%
<b>Age</b>		
5- 8	58	73.4
8- 10	15	17.7
10-12	7	8.9
<b>Gender</b>		
Male	47	59.5
Female	32	40.5
<b>Type of enuresis</b>		
Primary	69	87.3
Secondary	10	12.7
Daytime enuresis	60	75.9
Nocturnal enuresis	60	75.9
Diurnal enuresis	41	51.9

**Table 2** Distribution of bladder bowel dysfunction among children with enuresis

<b>Bladder bowel dysfunction</b>		
Retention of urine	8	10.1
Constipation	7	8.9

**Table 3** Behaviour disorders among children with enuresis

<b>Behavioural disorders</b>	2	2.5
<b>Bothered by enuresis (yes)</b>	16	20.3

**Table 4** Gender wise distribution of the types of enuresis ( significant p value < 0.05 )

	<b>Gender</b>		<b><math>\chi^2</math> p value</b>
	Male [N (%)]	Female [N (%)]	
Overactive bladder	20 (80%)	5 (20%)	0.01
Nocturnal enuresis	32 (68.1)	28 (87.5)	0.04
Daytime enuresis	40 (66.7)	20 (33.3)	0.02

### 3. Discussion

The findings of our study suggest that enuresis is a common problem in children although still underdiagnosed [23]. Prevalence of enuresis varies from 23% in under 5 years age group to 4% above 10 years of age [20,21]. In our study among the 80 children with enuresis, 50% that is 40 children had non-monosymptomatic (NME) enuresis [19] with majority among them having overactive bladder that is 31.6%. The earlier studies done on enuresis show a slightly

higher prevalence of non-monosymptomatic enuresis with most children having associated bladder bowel dysfunction and constipation was the most common among them [8,9]. In our study prevalence of enuresis was the highest in 5 to 8 years age category being 73.4% and it decreased with increasing age [10,11], as is also seen in other studies where follow up of children with enuresis showed that many of them outgrew their enuresis with age. Our study had the prevalence of behavioural disorders in only two children with enuresis and both had attention deficit hyperactive disorder which amounts to 2.5% of the total number of children enrolled. The higher percentage of behavioural disorders was noticed in other studies exploring the epidemiology of enuresis in children. Also, enuresis was found to be more common in children who were diagnosed with a behavioural disorder in earlier studies [14,15]. Our study found a statistically significant association between male gender and the prevalence of overactive bladder with a p value of 0.01. However, similar association did not exist in previous studies which showed no correlation with gender or a higher prevalence in female children [17,18]. Thus, enuresis is a fairly common problem in school going children and is a cause of anxiety and poor quality of life [17]. Recognition of the non-monosymptomatic nature of the problem can help identify the cause and thereby tailor the treatment according to the associated problems.

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## Compliance with ethical standards

### *Disclosure of conflict of interest*

No conflict of interest to be disclosed.

### *Statement of informed consent*

Informed consent was obtained from all individual participants included in the study.

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