

## Original Research Article

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# Prevalence of nocturnal enuresis among children aged 05 to 10 years

Dipak N. Khadke<sup>1\*</sup>, Prabha Dasila<sup>2</sup>, Nitin N. Kadam<sup>3</sup>, M. Saeed Siddiqui<sup>4</sup>

<sup>1</sup>MGM Institute of Health Sciences, Navi Mumbai, Maharashtra, India

<sup>2</sup>MGM New Bombay CON, Kamothe, Navi Mumbai, Maharashtra, India

<sup>3</sup>MGMHHS, Kamothe, Navi Mumbai, Maharashtra, India

<sup>4</sup>MGM Medical College and Hospital, Aurangabad, Maharashtra, India

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**\*Correspondence:**

Dipak N. Khadke,

E-mail: dipak123.sk@gmail.com

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### ABSTRACT

**Background:** Enuresis is common and considered to be normal among children younger than 3 years of age. Nocturnal enuresis is involuntary passage of urine during sleep among children five years of age or older. It is not a serious health problem, and children usually develop control over the bladder as they grow older but it can be upsetting for children as well as parents. India estimates 7 to 15 % prevalence rate among children and the numbers drop to 3 to 5% by the age of ten years. Objectives were to identify the children with Nocturnal Enuresis and assess their clinical profile.

**Methods:** A descriptive survey was conducted among the children age 05 to 10 years. Data were collected from two villages of Aurangabad district and the information was gathered from parents of 413 with the use of structured questionnaire. The first section included the socio- demographic characteristics of the children and their parents. The second section included variables related to the clinical profile and history of nocturnal enuresis in the family.

**Results:** The prevalence of nocturnal enuresis was 10.91% in which 06.94% were males and 03.97% females. With regard to severity 55% children were found to be in moderate category while 09% belonged to severe category of nocturnal enuresis.

**Conclusions:** The prevalence rate was higher in selected villages. Most of the parents consider nocturnal enuresis as social stigma. Counseling and education of parents would help in improving general health of children in rural area.

**Keywords:** Nocturnal enuresis, Effect of enuresis, Bed wetting

### INTRODUCTION

Enuresis or bed wetting may persist in children up to the age 5 years as part of normal childhood development. Children learn bladder control at different ages, but more than 90% are continent by age 5. Enuresis can happen during the day or at night.

Nocturnal enuresis (Bed wetting at night) is an intermittent involuntary act of voiding during sleep in absence of physical disease among children aged 5 years or more. A minimum episode of 1 to 2 times a week over at least 3 months is required for diagnosis to be made.<sup>1</sup>

The children with developmental delay, physical or intellectual disabilities, and psychological or behavioral disorders are most commonly found bed wetting above 5 years of age. It occurs in 20-50% of children with psychological or behavioral disorders, such as attention-deficit/hyperactivity disorder (the most common), autism spectrum disorder, anxiety, and depressive or conduct disorders.<sup>2</sup>

Enuresis is a serious source of distress both for the child and family. Physical, mental and social factors may be involved in occurrence of enuresis.<sup>3</sup> The prevalence estimation of Nocturnal Enuresis was varied in different

part of the country, one of the studies was conducted in Ahmedabad, Gujarat where prevalence rate was 11.13 % and more common in the male than female children.<sup>4</sup>

### **Need of the study**

Nocturnal enuresis is not a condition, but a symptom of an underlying condition. It impacts the emotional state, self-esteem, as well as the social development of a child. Affected children may be at an increased risk of physical and emotional abuse from family members.<sup>5</sup>

Health of the children has been considered to be of vital importance in all societies because children are the basic resource for the future generation. As per the statistics 2021, about 25.69% of the Indian population is found into the 0-14-year category.

Nocturnal enuresis is a multifactorial condition, with genetic, developmental, and psychological factors contributing to its pathophysiology.<sup>6</sup> Although it has a significant impact on a child's psychology, it is always under-recognized in India. The children who reside in the rural areas are at further disadvantage in recognizing it as a problem. Therefore, the researcher thought of conducting a survey in the rural areas of Aurangabad city to identify the children with nocturnal enuresis.

### **Aim**

The aim of study was to estimate the prevalence of nocturnal enuresis among children between 0 to 5 years residing in rural areas of Aurangabad city, Maharashtra.

### **METHODS**

A non-experimental descriptive study was undertaken by conducting house-to-house visits in the villages of Golatgoan and Jikthan in Aurangabad district, Maharashtra, from January 2023 to March 2023. Permission was obtained from the concerned medical officer of the primary health centre and the sarpanch of gram panchayat. Written informed consent was obtained from the parents, and assent was obtained from children between 5 and 10 years of age. Primary screening was performed to select children with bedwetting issues for the study. Children diagnosed with urinary diseases, a history of renal surgery, juvenile diabetes mellitus, mental illness, or mental retardation were excluded from the study. Non-probability purposive sampling techniques were used. Data were collected from the parents of 413 children in the villages of Aurangabad district. The collected data included the demographic profiles of the children and parents, the frequency of bedwetting, and the clinical profiles of the children.

This descriptive survey study was conducted from September 2014 to October 2015 in the rural areas of Golatgoan and Jikthan villages in Aurangabad district, Maharashtra, India. The study aimed to estimate the

prevalence of nocturnal enuresis among children aged 5 to 10 years in these rural areas.

In terms of patient selection, children between the ages of 5 and 10 years who resided in the selected rural areas were included in the study. However, children with a history of urinary diseases, prior renal surgery, juvenile diabetes mellitus, mental illness, or mental retardation were excluded from the study.

Ethical standards were strictly adhered to throughout the study. Prior to data collection, permission was obtained from the relevant medical officer of the primary health centre and the sarpanch of gram panchayat. Informed consent was a crucial component of the study, with written consent acquired from the parents and assent obtained from the children within the specified age group.

The data collection process involved house-to-house visits in the designated villages. Non-probability purposive sampling techniques were employed to select the study participants. The data variables gathered included demographic profiles of the children and parents, the frequency of bedwetting, and the clinical profiles of the children.

For the statistical analysis, descriptive statistics were used to summarize the collected data. This included calculating percentages and frequencies to determine the prevalence of nocturnal enuresis among the children. The severity of bedwetting and other clinical profiles were also assessed using descriptive statistics. The data was presented in tables and figures to provide a clear representation of the findings. Furthermore, the data was compared to relevant literature and studies to discuss the findings and their significance.

The study was conducted in strict adherence to ethical guidelines, and all necessary permissions and consents were obtained prior to data collection.

### **RESULTS**

In this study total 413 children were screened, out of which 44 (10.91%) were identified having nocturnal enuresis. 63.6% of them were males and 36.4% females.

**Table 1: Nocturnal enuresis among children between the age 05 to 10 years, (n=413).**

Gender	Children with enuresis	
	N	%
Male	28	63.6
Female	16	36.4
Total	44	100

The prevalence of nocturnal enuresis among the children in this study was 10.91% and most of them were male children (Table 1).

The data shows that almost 64 percentages children with Nocturnal Enuresis are mostly second child in the family shows in the Figure 2, 84 percentages children were from the age between 05 to 08 years and 64 percentages children second in birth order, the study indicates the educational level is higher in fathers than mothers while

52 percentages of mothers are housewives (Table 2).

The present study reported 55% children having moderate severity, 36% mild severity and 9% children were found with severe bed wetting (Table 3 and Figure 2).

**Table 2: Demographical characteristics of children with nocturnal enuresis, (n=44).**

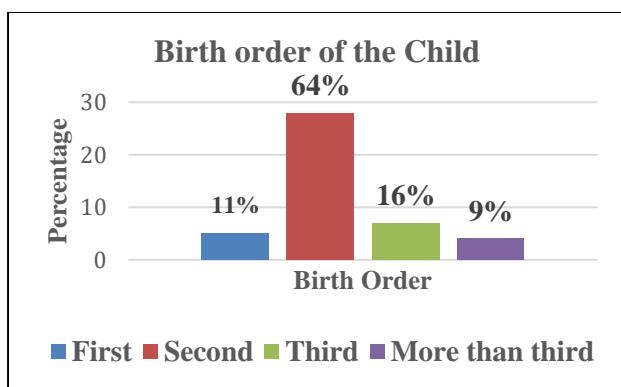
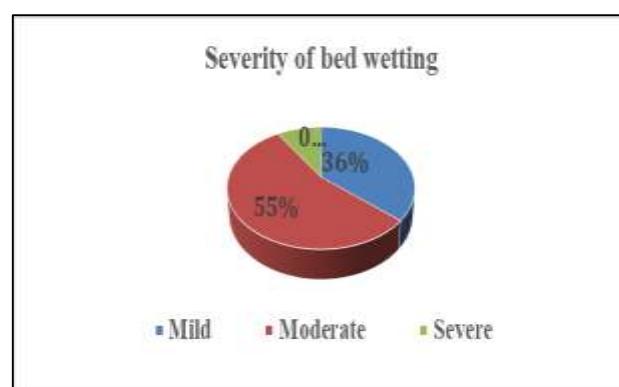
Demographical parameters	N	Percentage (%)
<b>Age of the child (In years)</b>		
5-6	24	55
7-8	13	29
9-10	07	16
<b>Birth order of the child</b>		
First	05	11
Second	28	64
Third	07	16
More than third	04	09
<b>Educational level of father</b>		
Illiterate	00	00
Primary	00	00
Secondary	15	34
Higher secondary	17	39
Graduate and above	12	27
<b>Educational level of mother</b>		
Illiterate	00	00
Primary	11	25
Secondary	16	36
Higher secondary	09	20
Graduate and above	08	18
<b>Occupation of father</b>		
Private job	04	09
Govt. job	06	14
Business	08	18
Agriculture and related	26	59
Unemployed	00	00
<b>Occupation of mother</b>		
Private job	03	07
Govt. Job	02	05
Agriculture and related	16	36
Housewife	23	52
<b>Income of the family (Monthly in INR)</b>		
Less than 8000	08	18
8001-15000	08	18
15001-20000	20	46
More than 20001	08	18
<b>Both parents are living together</b>		
Yes	41	93
No	03	07
If no out-station job	03	100

**Table 3: Severity of bed wetting among identified children, (n=44).**

Category	N	Percentage (%)
Mild	16	36
Moderate	24	55
Severe	04	09

**Table 4: Clinical profile of children with nocturnal enuresis, (n=44).**

Clinical profile parameters	N	Percentage (%)
<b>Previous history of enuresis in parents</b>		
Yes	04	09
No	40	91
<b>Past history of enuresis in siblings</b>		
Yes	12	27
No	32	73
<b>History of urinary tract infection (UTI)</b>		
Yes	28	64
No	16	36
<b>History of surgery in genital area</b>		
Yes	00	00
No	44	100
<b>Pain during voiding</b>		
Yes	08	18
No	36	82
<b>Constipation</b>		
Yes	14	32
No	30	68
<b>Day time incontinence</b>		
Yes	02	05
No	42	95
<b>Day time urine urgency</b>		
Yes	28	64
No	16	36
<b>Toilet training started at the age of (In years)</b>		
Less than 3	08	18
More than 3	36	82
<b>Bed wetting time at night</b>		
2 hrs. after sleep	00	00
Midnight	24	55
Early morning	20	45
<b>Consulted with physician for bedwetting</b>		
Yes	12	27
No	32	73
<b>Have you tried any behavior modification therapy for nocturnal enuresis?</b>		
Yes	12	27
No	32	73
<b>If yes</b>		
Regularly	02	17
Occasionally	10	83

**Figure 1: Birth order of child in the family.****Figure 2: Severity of bed wetting.**

## DISCUSSION

In this study total 413 children were screened, out of which 44 (10.91%) were identified having nocturnal enuresis. 63.6% of them were males and 36.4% females. Similar results were found on gender proportion in the study by Alshahrani et al in which 62.9% were males, and 37.1% females.<sup>7</sup> The prevalence of nocturnal enuresis among the children in this study was 10.91% which is similar to the study by Nakate et al 11.40% and Srivastava et al 12.6% and most of them were male children.<sup>8,9</sup>

In the present study found that 84% of the children were below the age 8 years. Most (55%) were in the age group 5 to 6 years followed by 29% in the age 7-8 years and few (16%) among the children 9-10 years. In a study by Bakhtiar et al found that 57 (8%) of the children had nocturnal enuresis, and highest prevalence rate was found in the 8-year-old age group (11.9%) and the lowest rate in the 10-year-old age group (5.8%).<sup>10</sup> The study by Gaonkar et al had slightly different results in which the highest proportion of children with enuresis were in the 6-8 group.<sup>11</sup>

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Study conducted in Sydney Australia, indicated prevalence of 18.2% children with nocturnal enuresis in which 12.3%, 2.5%, and 3.6% of the children were reported to have mild, moderate, and severe nocturnal enuresis, respectively.<sup>12</sup> Though the Australian study indicated higher prevalence rate than the present study (55% moderate and 09% severe) but the severity under each category was found much lower than current study.

The present study found 9% of parents and 73% of siblings were found with the history of enuresis. The results of study by Alexander revealed 8.8% mothers with nocturnal enuresis and 0.7% with daytime urinary incontinence and 9.6% fathers had nocturnal enuresis and 0.3% daytime urinary incontinence.<sup>4</sup> Contradictory results were found in a study in Ethiopia the mothers of 55.13% (113) had the problem of enuresis while 16.59% (34) father, 17.07% (35) siblings, 10.24% (21) cousin and 0.97% (2) had enuretic relatives. In the current study 64% children had urinary infection.<sup>13</sup>

This survey identified 64% children with history of urinary tract infection, 32% constipation and 64%-day

time urgency while the study showed seventy-five percent of the patients had constipation for more than 1 year.<sup>14</sup> The most common urinary symptoms were dysuria (16.7%), urinary frequency (12.5%), and dribbling (4.2%). The frequencies of nocturnal and daytime enuresis were 22.5% and 3.3%, respectively.

In the present study majority of children (82%) started toilet training at the age more than 3 years. Study found that 55% children had bed wetting at midnight while 45% of children were found in the early morning. 73% parents did not opt for any behavioral modification therapy for nocturnal enuresis in children while 27% of them did try some behavioral modification occasionally while study by Ju et al found that in Korea, parents of younger children with nocturnal enuresis were more concerned about disease progression, while parents of older children were more concerned about interpersonal relationships.<sup>15</sup>

### Limitations

There are several limitations to this study that should be acknowledged. Firstly, the research was limited to a specific age group of children between 5 to 10 years and focused on rural areas in Aurangabad city, Maharashtra. As such, the findings may not be generalizable to children in urban settings or to those outside this age range. Secondly, the study relied on self-reporting by parents, which may introduce recall bias and underreporting of sensitive information. Additionally, the study did not explore the potential influence of cultural or socio-economic factors, which can play a crucial role in the prevalence and perception of nocturnal enuresis. Finally, the study did not assess the long-term impacts or psychological consequences of enuresis on affected children, which is an essential aspect of understanding the condition comprehensively. These limitations should be considered when interpreting the results and designing future research on this topic.

### CONCLUSION

The study found nocturnal enuresis among 10.91% children in the age group 5-10 years. During the survey it was also found that most parents neither wish to express openly about the bed wetting of their children nor willing to take part in any further advice from the medical professionals for treatment. Majority of the parents lacked awareness on nocturnal enuresis. It indicated hidden fact on neglect on health which may impact psychological well-being and lack self-esteem of the children. Healthcare providers need to actively participate in identifying children at risk and performing therapeutic measures. Exploring accurate history to distinguishing the type of enuresis and its possible cause is necessary for further line of treatment. Education of the family members on will help the parents to manage the children well with different behavioral modification strategies which in turn help the children to develop control over the bladder.

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