

Prevalence of nocturnal enuresis among children of Aseer region in Saudi Arabia

Abdulaziz Alamri, Vinod Prem Singh, Mishari HM Alshyarba, Alahmari Abdullah, Meshal Ogran, Abdullah Alsuayri, Amal Al-Amri, Tarique Hussain Ashraf, Fahad Alyami, Mohammed Sharaf Alshahrani¹

Department of Surgery, College of Medicine, ¹Student, King Khalid University, Abha, Saudi Arabia

Abstract

Introduction: Nocturnal enuresis (NE) in children is a very common problem managed in pediatric urology. In this study, we present the prevalence of NE in children in Aseer region in Saudi Arabia.

Methodology: This study was conducted as a descriptive cross-sectional survey to estimate the prevalence of NE among 555 Saudi children aged 5–15 years in Aseer region in Saudi Arabia. Data collection was done through a questionnaire, which included questions on sociodemographic data, personal knowledge, enuresis-related characteristics, risk factors, and management modalities.

Results: This study identified a prevalence of enuresis of 24% of the study population, most of whom were boys. The majority of the parents had a high educational level. Clinical characteristics of the study population showed: 9% have a family history of NE, 2.2% have a history of neurological disorder, 10.0% have a history of urinary tract infections, 66.8% have associated daytime urgency, 67% have urine-holding behavior, and 19.5% have associated daytime enuresis of the study population.

Conclusion: Our study found that 24% of children in the Aseer region in Saudi Arabia have NE. Our study finding helps us to understand the prevalence of NE in Aseer region in Saudi Arabia, and this can be applied to other regions in the kingdom. Furthermore, this finding helps us to understand the need to raise awareness in the community about NE and the need to educate the nonpediatric urologist health-care provider about the best management practice for NE.

Keywords: Aseer, bedwetting, enuresis, nocturnal enuresis, Saudi Arabia

Address for correspondence: Dr. Abdulaziz Alamri, Department of Surgery, College of Medicine, King Khalid University, Abha, Saudi Arabia.
E-mail: aaalamri@kku.edu.sa

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INTRODUCTION

Many children across the world suffer from nocturnal enuresis (NE), sometimes referred to as bedwetting. Up to the age of six, bedwetting, which is defined as the uncontrollable passing of urine while sleeping, is considered normal. Bedwetting, however, can be upsetting for both the kid and their family. It affects approximately

15%–20% of children aged 5–7 years, and 2%–3% of children aged 10–12 years.^[1]

NE is more common in some people and places than others, with documented frequencies ranging from 1.6% to 29%.^[2] Data on the frequency of NE among youngsters in Saudi Arabia are few, and no data on NE prevalence in Aseer region. Almost 2 million people live in the region of

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Aseer, which is in the southwest of Saudi Arabia.^[3] Aseer is a well-liked tourist destination because of its rich valleys, tall mountains, and nice environment,^[4] and it is known to have colder weather in comparison to the other parts of the country.

In children, allergic illnesses are the most frequent condition, followed by NE if a kid has never been dry or secondary if it develops after at least 6 months of dryness.^[5] Ninety percent of instances of enuresis are primary enuresis. It is frequently linked to a family history of enuresis and may also be brought on by a developmental condition that affects the bladder sphincter. The secondary form of enuresis may result from urologic or neurological issues, such as chronic urinary tract infection (UTI) and spinal cord abnormalities.^[6] Diabetes mellitus, the incidence of mental stressors, and family disputes are other causes of enuresis.

Enuresis comes in two flavors: monosymptomatic and nonmonosymptomatic, the latter of which is linked to daytime incontinence or other lower urinary tract symptoms including urgency. If an enuretic episode occurs four or more times each week, it is also considered to be common.^[7] UTI, constipation, and caffeine overconsumption are significantly associated with monosymptomatic NE.

Children who wet the bed might experience serious psychological and social repercussions, such as low self-esteem, behavioral issues, and difficulties making friends. Furthermore, it can cause stress and frustration for parents and other caregivers who may find it difficult to adequately manage the disease.^[8] Many risk factors, including genetic susceptibility, developmental delay, psychological stress, and medical disorders, have been found. Bedwetting reasons are multifaceted. Bedwetting may be more common among children from low-income households and those who live in rural regions, according to studies.^[9]

A cross-sectional survey of parents or other caregivers of children in the Aseer region aged 5–15 years was conducted. The survey gathered data on the child's bedwetting patterns, demographics, medical history, family history, and lifestyle variables. Furthermore, our study looked at how bedwetting affects a child's psychological health, general quality of life, and school performance.

Our main objective of this study is to: determine the overall prevalence of NE among children in Aseer region and identify its characteristics within the study population.

METHODOLOGY

Study design and population

In this study, a descriptive cross-sectional survey was conducted to estimate the prevalence of NE among 555 Saudi children aged 5–15 years in Aseer region in Saudi Arabia. The study was carried out from January 2017 to December 2017, covering a range of localities and cultures in the kingdom.

Data collection

For data collection, an auto-questionnaire was employed and distributed to parents or caregivers in multiple general pediatric clinics. The questionnaire was designed to fulfill the study objectives and included questions on various aspects related to NE. These included sociodemographic data of the participants such as the child's age, gender, and birth order. It also included questions related to the respondents' personal knowledge about NE and its causes. The questionnaire also included questions on enuresis-related characteristics such as the timing, relation to sleeping, frequency per week, and any improvement observed upon decreasing fluid intake before sleeping, among others. Additionally, risk factors such as a family history of NE in parents or siblings, chronic diseases, anemia, delayed milestones, and others were also assessed. Finally, the questionnaire also included questions on management modalities used for children who have NE.

Ethical considerations

Ethical approval for the study was obtained from the institutional review board. Informed consent was obtained from all the parents before the study was conducted. Confidentiality and privacy were ensured throughout the study. This research received no specific grant from any funding agency in public, commercial, or nonprofit sectors.

Statistical analysis

All statistical analyses were performed by using SPSS (Statistical Package for the Social Sciences version 24.0, IBM Corp. Released 2011. IBM SPSS Statistics for Windows, Version 20.0. Armonk, NY: IBM Corp.). Descriptive results are presented as mean \pm standard deviation for all quantitative variables (such as age), whereas number (percentage) is reported for all categorical variables (such as gender).

RESULTS

Out of 600 parents who were contacted, 555 questionnaires were completed and analyzed with a response rate of 92.5%. This study identified a prevalence of enuresis of 24% of the study population [Figure 1]. Most children (62.7%) were boys, with equally distributed age

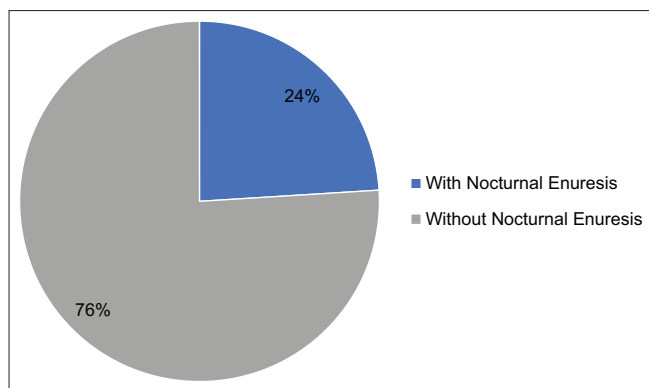


Figure 1: Prevalence of nocturnal enuresis

proportions, and only 31.5% of studied children were the first child [Table 1 and Figure 2]. The majority live in the urban side (85.9%) while half of the participants have 5000–15,000 SAR as monthly income. A total of 427 children have a working father (76.9%). The majority of the parents had a high educational level (university: 51.7% in fathers and 61.3% in mothers).

As for clinical characteristics presented in Table 2, only 9% have a family history of NE. While 2.2% suffer from neurological disorder with 1.3% having previous neurological surgery. Ten percent had a history of UTI, and 66.8% had associated daytime urgency. The mean frequency of urination per day was 4.144 ± 1.334 . Urine-holding behavior was present in 67% of the study population.

Table 3 shows NE-related characteristics among the studied sample. Out of the study population, 18% have enuresis every night, 19.5% have associated daytime enuresis, and 35.3% are wetting more than once during the night. A total of 82 (61.7%) children are wetting in large quantities subjectively according to their parents. As per Table 3 we have observed that 59 respondents visited the doctor to take doctor advise, out of these 59 respondents only 8 (13.6%) were using medications, 22 (37.3%) tried to make their child awake in night, 9 respondents (15.3%) had changed the drinking habits of their children's, only 2 respondents (3.4%) were using bedwetting alarms, while out of these 59 respondents who visited doctor, 18 (30.4%) used multiple advices to overcome this issue. The highest proportion of children had either excellent (36.8%) or intermediate (34.6%) educational achievement level at school. The reason of the visit was the parents' concern with a score of 3.856 ± 2.112 out of 6, while the child had anxiety with a score of 3.689 ± 2.141 out of 6.

DISCUSSION

The global incidence of NE has been estimated to be

Table 1: Demographic characteristics of study participants

	Frequency (%)
Gender	
Female	207 (37.3)
Male	348 (62.7)
Age (years)	
Between 5 and 7	187 (33.7)
Between 7 and 10	165 (29.7)
>10	203 (36.6)
Residence	
Rural	78 (14.1)
Urban	477 (85.9)
Monthly income (SAR)	
<5000	85 (15.3)
5000–15,000	288 (51.9)
>15,000	182 (32.8)
Family size	5.095±1.113 (minimum: 3, maximum: 7)
Child room residents	2.663±1.159 (minimum: 1, maximum: 5)
Child order	
First	175 (31.5)
2 nd –3 rd	194 (35.0)
4 th or above	186 (33.5)
Father employment	
Not working	31 (5.6)
Retired	97 (17.5)
Working	427 (76.9)

Table 2: Baseline clinical characteristics

	Frequency (%)
Family history of NE	
No	505 (91)
Yes	50 (9)
Neurological disorder	
No	543 (97.8)
Yes	12 (2.2)
Previous neurological surgery	
No	548 (98.7)
Yes	7 (1.3)
History of UTI infection	
No	498 (89.7)
Yes	57 (10.3)
History of constipation	
No	398 (71.7)
Yes	157 (28.3)
Frequency of urination per day	4.144±1.334 (minimum: 1, maximum: 8)
Urine holding behavior	
No	184 (33.2)
Yes	371 (66.8)

NE: Nocturnal enuresis, UTI: Urinary tract infection

between 3% and 20% in kids between the ages of 5 and 18 years.^[10] Physiological enuresis tends to resolve with time, and 20% of patients might continue after puberty and into adulthood.^[11] NE in children results in unhappiness and low self-esteem. Along with having significant social and economic repercussions for the family, the intolerance intensifies as the child gets older. Improved behavior and personality scores were found in a review of nine research studies conducted on the effective therapy of the psychological state of enuretic children. The success of therapy was substantially correlated in five trials with the improvement in mental health.^[12]

According to our study's findings, the overall prevalence of NE was less common (24%) than the previously studied population in Saudi Arabia, with a frequency of 31.2% among the age group of 3–12 years.^[13] However, prevalence was reported to be on higher side when compared between

small intervals of age groups, and it grows up as the age increases.^[13] Similarly, the total prevalence of enuresis was reported to be 12.95% in French children aged 5–16 years and 15.05% in Saudi Arabian children aged 6–11 years; the incidence was found to be around 13% in 2 studies in Turkey.^[14–16]

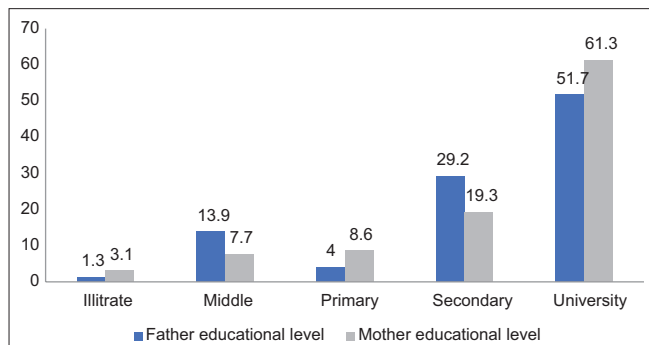


Figure 2: Percentages of parents' educational level

Table 3: Enuresis-specific characteristics

	Frequency (%)
NE every night	
No	109 (82)
Yes	24 (18)
If not how many times per week	
1.0	16 (14.7)
2.0	32 (29.4)
3.0	20 (18.3)
4.0	41 (37.6)
Daytime enuresis	
No	107 (80.5)
Yes	26 (19.5)
Wetting more than once per night	
No	86 (64.7)
Yes	47 (35.3)
Amount of wetting	
Large	82 (61.7)
Small	51 (38.3)
Wetting in the first 6 months	
No	68 (56.2)
Yes	53 (43.8)
Previously consulted a doctor	
No	73 (55.3)
Yes	59 (44.7)
Have took medication	
No	118 (89.4)
Yes	14 (10.6)
If yes, treatment received	18 (30.5)
Used more than treatment option (a + b + c)	
a. Awake the child at night	22 (37.3)
b. Medication	8 (13.6)
c. Change fluid drinking habits	9 (15.3)
d. Bedwetting alarm	2 (3.4)
Amount of parent concern	3.856±2.112 (minimum: 0, maximum: 6)
Amount of child anxiety	3.689±2.141 (minimum: 0, maximum: 6)
Child education achievement	
Below age	30 (22.6)
Excellent	49 (36.8)
Intermediate	46 (34.6)
Poor	8 (6)

NE: Nocturnal enuresis

Stressful situations with psychological and social roots might increase a child's chance of developing NE. Later-life nocturia is strongly correlated with a history of NE in infancy as reflected by the transition with hormonal abnormalities, sleep disorders, physiological disorders, and psychological disorders in a systematic review by Gong *et al.*^[17] Untreated enuresis can have serious repercussions, including an increased occurrence of social, emotional, and psychological issues.^[10] This also highlights the necessity for health-care professionals to be aware of this condition and further investigates their patients for it. To better understand the causes of the increased prevalence of enuresis in adults and to create effective therapies for this ailment, further research is required.

Our data demonstrated that males made up about two-thirds (62.7%) of the study's participants. This conclusion is in line with earlier research that indicated a greater percentage of male offspring in the overall population.^[18] Although the exact cause of this sex disparity is unknown, it has been postulated that biological variables, such as variations in hormone exposure during fetal development, may be involved.^[18]

Just 31.5% of the children in our study were the first child, according to the statistics. This conclusion is significant since it has been demonstrated that birth order affects a variety of elements of a child's development, such as personality characteristics, cognitive ability, and social conduct.^[19] According to earlier studies, first-born children had a tendency to be more responsible, goal oriented, and intellectually interested than siblings who were born later.^[19] The connection between birth order and a child's development, however, has been the subject of conflict findings in other studies. Sherah *et al.*^[15] showed a prevalence of 30.6% in the first child, 23.1% in the second child, and 15.5% in the third and 30.8% in the fourth and more.

The findings in Table 2 offer insightful information on the clinical characteristics of the research group with nonneurogenic overactive bladder (OAB). It was discovered that only 9% of people had a family history of OAB, which is consistent with other studies showing that genetic factors may not be a major component in the development of OAB.^[20]

UTIs were reported by 10% of the participants. UTIs are a common comorbidity associated with OAB, and it has been suggested that bladder inflammation resulting from UTIs may contribute to the development and exacerbation of OAB symptoms.^[21]

The majority of the study population (66.8%) reported associated daytime urgency, which is a hallmark symptom of OAB.^[22] The mean frequency of urination per day was 4.144 ± 1.334 , which is also consistent with OAB diagnosis criteria.^[22] Urine-holding behavior was reported by 67% of the study population. This finding is important as it suggests that nonneurogenic OAB patients may also experience bladder dysfunction that is typically associated with neurogenic OAB. Urine-holding behavior is a risk factor for UTIs and urinary incontinence.^[23]

This study showed that 28% of the children had a history of constipation. Despite being a substantial risk factor for lower urinary tract dysfunction and nonmonosymptomatic enuresis, constipation is not linked to the incidence of monosymptomatic enuresis, according to a research study published in 2021.^[24]

The significance of treating this issue in a health-care context is shown by the fact that over half of the children in this research had sought medical advice for their bedwetting. Yet, it is alarming that just a tiny percentage of kids who saw a doctor for their enuresis received medication or a bedwetting alarm, both of which are recommended therapies for this illness based on research. As an alternative, a sizable majority of kids were told to reduce their fluid consumption or get up throughout the night to use the restroom. While some kids may benefit from these therapies, they might not work for all enuresis situations. The discovery that parental worry, rather than the child's suffering, was the primary driver for seeking medical assistance highlights the necessity for health-care professionals to have conversations with parents and children regarding bedwetting and its possible effects on the child's well-being. It is noteworthy that the kids in this study reported feeling anxious about bedwetting, which might have effects on their mental health and social growth.^[14]

The young children in this research had positive educational accomplishment levels, with the majority of them claiming outstanding or intermediate achievement. This shows that enuresis might not always have a detrimental effect on academic performance, while additional investigation is required to fully understand this connection.

This study have potential limitations , We conducted this study only in Aseer region , we did not take sample outside

from Aseer region so we need more national studies in future to further investigate the Prevalence of N.E. in all over the Kingdom of Saudi Arabia.

Overall, our study's findings show the prevalence of enuresis of 24% of the study population, and this finding raises the importance of NE awareness for such a common problem as it has a psychological and self-esteem impact on the child and source of anxiety for children and their parents.

CONCLUSION

Our study found that 24% of children in the Aseer region in Saudi Arabia have NE with their clinical characteristics. Our study finding helps us to understand the prevalence of NE in Aseer region in Saudi Arabia, and this can be applied to other regions in the kingdom. Furthermore, this finding helps us to understand the need to raise awareness in the community about NE and the need to educate the nonpediatric urologist health-care provider about the best management practice for NE. Larger study to assess the national NE prevalence might be needed to know more accurate disease prevalence of NE in Saudi Arabia.

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Nil.

Conflicts of interest

There are no conflicts of interest.

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