

# Prevalence of nocturnal enuresis among elementary school students in Jalalabad, Afghanistan

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## Abstract

Prevalence of nocturnal enuresis among elementary school students in Jalalabad, Afghanistan. Background: nocturnal enuresis (bed wetting) refers to inability to control urination during sleep which is common issue in children above 5 years of age. This study aimed to determine the prevalence of nocturnal enuresis in elementary schools of Jalalabad.

Methods: This cross sectional study conducted from 4th/April/2014 to 9th/April/2015 in elementary schools of Jalalabad city. 1400 questionnaire were distributed to students of two elementary schools (one governmental, one private). These questionnaire were answered by their parents.

Results: from the data received 1339 questionnaire were analyzed. Mean age was 9.9 (SD=2.3), CI (9.8 – 10.5). Overall prevalence of nocturnal enuresis in elementary schools of Jalalabad was 19%. Means that out of 1339 students 254 had nocturnal enuresis. Additionally 15/6% had UTI and 34% had both UTI and enuresis. Showing UTI as potential cause of enuresis. In relation to gender the prevalence of nocturnal enuresis in the boys (22.4%) was higher compared with that in the girls (14%). P<0.05

Conclusion: Our results with enuresis prevalence were comparable to other epidemiological studies from various countries. We found that afghan families do not pay sufficient attention to their enuretic children.

**Keywords:** nocturnal enuresis, Diurnal enuresis, urinary bladder, psychological disorders, Bed wetter.

## Introduction

Enuresis or bedwetting is involuntary loss of urine without any organic lesion that disturbs child and parents. (1)

If a child is wetting his or her bed at least twice a week for three consecutive months, past the age of five years this child is called enuretic.

Types of enuresis include: nocturnal enuresis is wetting that occurs in the night while asleep.

Diurnal enuresis is wetting that occurs during the day while the child is awake.

Mixed enuresis is combination of nocturnal and diurnal type.

Primary enuresis refers to children who have never been successfully trained to control urination.

Secondary enuresis refers to children who have been successfully trained and are continent for at least six months but reverts to wetting afterwards.

In our beloved country, there is enuresis in children and even teenagers which according to elders these children face demoralizing and abusive words, means these children are called Bed Wetter.

These discouraging words cause emotional distress and social weakness in children.

In those families which are urbanized and educated, parents are more distressed and cause psychological, social, emotional and even economical fall in the family.

Unfortunately we don't have precise data about enuresis in Afghanistan, so we considered it necessary to find prevalence of enuresis in Jalalabad city so that proper solution for this disorder can be explored.

## **Literature review**

Involuntary loss of urine while asleep is called nocturnal enuresis (NE). It is said that by reaching five years of age this condition should not happen. Enuresis is a common problem especially in boys, although Enuresis is considered a benign condition, mostly children and parents are considerably affected by depression and emotional stress. 15% of children who are five years old wet their bed while asleep. in these affected children every year 15% improves, so as these children reach 15 years of age only 1% suffer from Enuresis. (Alexandar Von Gontard Enuresis)

The urinary bladder control is usually maintained at the fifth year of age. Most of the children control their urine throughout the day at the age of two to three years and control night time urine at the age of three to five years. Generally after five years of age 10-15% of children remain enuritic, which is three times more common in boys than in girls, and by reaching the age of 10 yrs three percent of girls and one percent of boys are still enuritic. Enuresis is a benign condition but mostly create emotional and psychological problems for children and their families (2).

Enuresis account for a common childhood disorder that has a similar worldwide prevalence. Ten percent of all seven years old children wet their beds at night time and 2-3% are enuretic during day time.

History of UTI is significantly associated with enuresis (3).

Despite high remission rate, 1-2% of young adults wet their beds at night time and less than 1% of them have day time enuresis. Most of them that had re-covered from this disorder had functional causes rather than neurological, structural and medical causes (30). Enuresis has relation with emotional stress in both children and parents, once this disorder is recovered then the stress will go away. Hence, termination of bed wetting is the main goal of treatment. Once they are recovered then they become confident and their emotional state is improved (4).

Enuresis is one of the common problems during child development (5). According DSM-IV-TR secondary causes like diuretics, DM, epilepsy should be ruled out (6).

Moreover, 20-40% of all enuretic children are associated with psychological disorders. In these children not only neurotic disorders such as ADHD (Attention Deficit Hyperactivity Disorder) but also depression can play role in the establishment of enuresis. While these associated situations need specific investigation and treatment.

Most of enuresis types could be effectively managed by counselling and behavior change communication, but some types need to be treated with medication. Most of these patients are managed on OPD basis by counselling and professional precaution measures. The purpose is that to investigate and treat these patients with limited resources.

## **Methodology**

This study was carried out on students of two primary schools of Jalalabad city, Nangarhar Province. The study period was one year from (4th April 2014) to (9th April 2015).

The study proposal was endorsed by research review committee of Medical faculty of Nangarhar University. The official letter was sent to education Directorate in order to get their support for data collection process from primary schools. The initial information about numbers and locations of primary schools was collected, in total there were 43 government and 34 private schools. Total number of students was 110000 and 52% of them were students of primary schools. In addition, number of private schools students were 13250 and 73% of them were from primary schools.

The study design was cross sectional and randomly two schools (One government and one private) were selected. The government school was Jalalabad Tajrobavi School and private school was Iqra School.

The data was collected through a structured questionnaire, the sample is attached. The first section of questionnaire was about child identification, life, family and history, the second section was about nocturnal enuresis and treatment.

The name of student was not mandatory and questionnaire was self-respondent by parents of children. It was mentionable that the paper would not be shared with anyone else and there was not any incentive to children or parents.

**Part 1**

1. Is your child? Male  Female  (Please tick)
2. Child age \_\_\_\_ years
3. Is your child deep sleeper? Yes  No
4. How is the school performance of your child? Good  Moderate  Fail
5. Number of siblings. None  Single  2 or more
6. Presence of other people sleeping in the child's room. None  1 person  2 or more
7. History of enuresis in the siblings. Yes  No
8. History of recurrent urinary tract infection. Yes  No
9. History of upper respiratory tract infection. Yes  No
10. Age of the mother; age \_\_\_\_ years.
11. Age of the father; age \_\_\_\_ years.
12. Dead father. Yes  No
13. Dead mother. Yes  No
14. Working mother. Yes  No
15. Working father. Yes  No
16. Education level of mother. Primary school or less  Junior high school or more
17. Education level of father. Primary school or less  Junior high school or more
18. Family history of enuresis.  
Mother or father enuretic   
Mother and father enuretic   
Mother and father non-enuretic

**Part 2**

19. Does your child wets his/her bed during nighttime? Yes  No
20. What is the frequency of bedwetting of your child?  
Every night  4-6 times per week  1-3 times per week  1-2 times per month
21. Did your child have continuous dry period more than six months? Yes  No
22. Did your child experienced bedwetting during daytime? Yes  No
23. Did your child treated for bedwetting? Yes  No
24. What type of treatment did your child received?  
Medications  waking to void  wait for maturity  fluid restriction  alarm treatment

### Dear parents:

This questionnaire is sent to your nice consideration by your respected child, in order to be filled with attention and confidence. Your name and your child name is not supposed to be mentioned and your information will not be share with other students or anyone else. The study team just want to find out that how many children wet their beds at night in Jalalabad city. And what is the reason? In order to prevent and treat this disorder. There will be no monetary incentive rather than supporting improvement of your country children health.

Hope you answer the questions correctly.

**Note:** The questionnaire was taken from a Turkish study (Prevalence and Associated Factors of Enuresis in Turkish Children), (Cuneyt Ozden et al) and primary investigator acknowledged this important point. However, some of areas are modified.

With the permission of schools administrations, the questionnaires were distributed to the student of class first to sixth (both boys and girls). On each questionnaire only the student will write attendance sheet number and class grade. Students were asked to fill it by their parents then hand it over back to administration within three days.

The contact number of primary investigator is written at the end of questionnaire, parents can call if they have any relevant questions. Almost 2% of parents contacted and their questions were suitably answered.

Totally 1400 questionnaires were distributed out of which 1366 were received back. After double checking and data cleaning process 1339 questionnaires were entered in simple excel sheet database. Out of them 772 were from Tajrubavi School (Government) and out of them 567 were from Iqra School (Private).

After data cleaning process the data were analyzed in spread sheet, and two by two table was used for calculation of P-Value. The Chiaq Test was applied to find out required variables, percentage, P-Value, and significance.

### Results:

This study was carried out from 4th April 2014 to 9th April 2015. Total 1400 questionnaires were distributed and 1366 were completed and received back. After data cleaning process 1339 were eligible to be used for analysis and results generations.

Out of 1339 students 553 (41%) were girls and 786 ( 59%) were boys. 772 students were from government school (Tajrubawi) and 567 were from private school (Iqra).

The prevalence of enuresis was 19% in primary schools of Jalalabad city, out 1339 students 254 were suffered from enuresis.

Table-1: Number and percentage by gender

	Total participants	Female	Male	Remark
Number	1339	553	786	
Percentage	100%	41%	59%	

Graph-1: Gender segregation by percentage

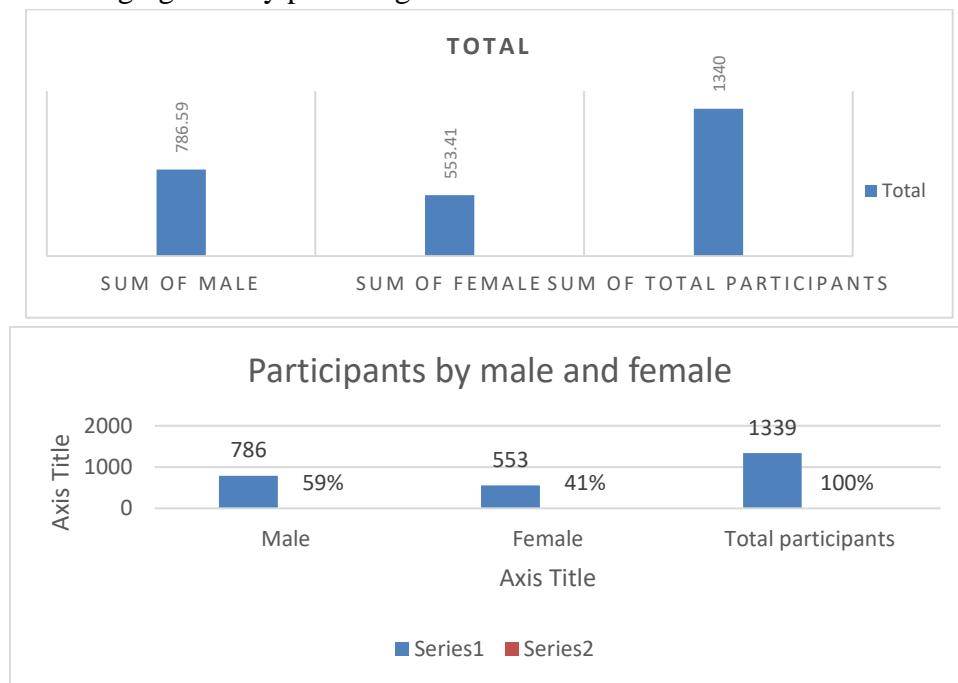
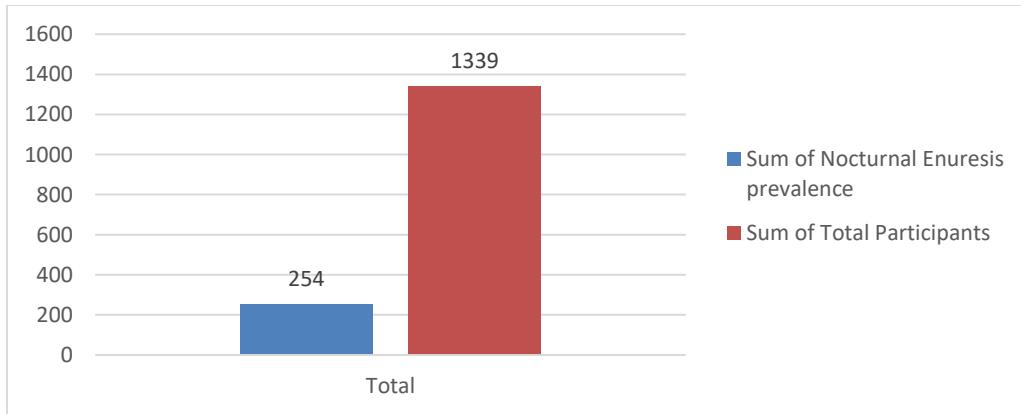


Table-2: Prevalence of enuresis.

	Total Participants	Nocturnal Enuresis prevalence	Remarks
Number	1339	254	
Percentage	100%	19%	

2- Graph prevalence of enuresis:



Comparison of gender segregated data: Number of girls were 553 and 78 (14%) girls wet beds at night. Number of boys were 786 and 176 (22.4%) wet beds at night. Therefore, the enuresis cases were more in boys compare to girls.  $X^2=0,00014$   $P<0,05$

Table-3: Gender segregation by number and percentage.

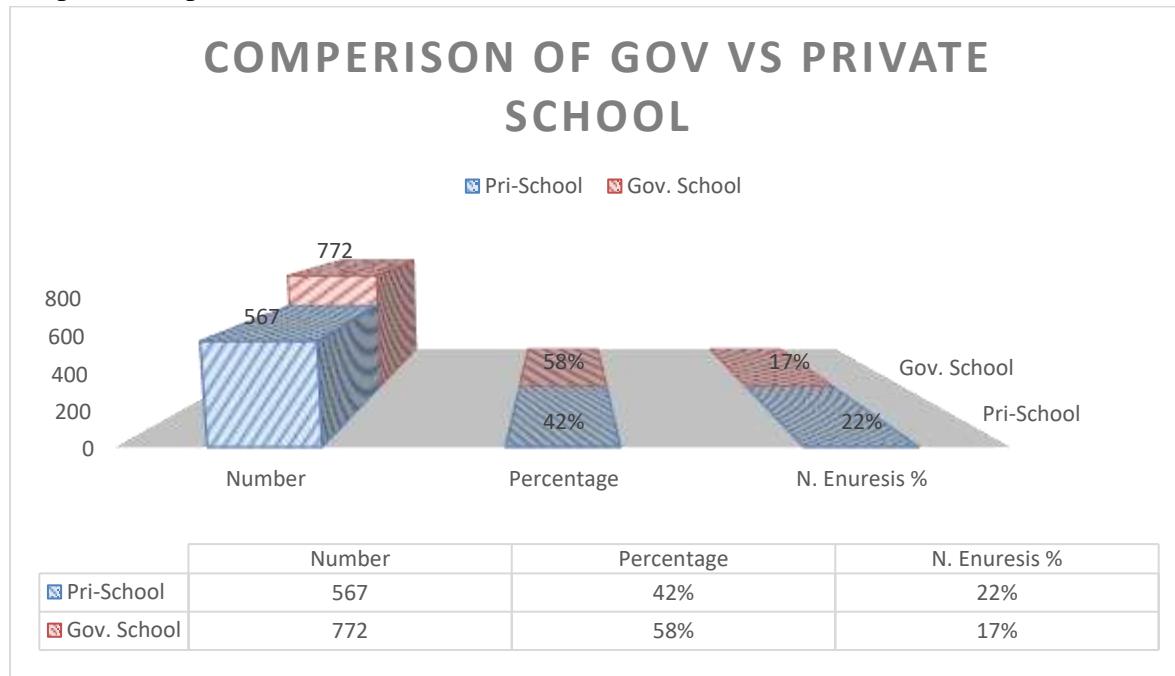
	Number	Percentage	Having enuresis		
Boys	786	59%	176	22.5%	
Girls	553	41%	78	14%	
Total Participants	1339	100%	254	19%	

In government school 772 students participated and 130 (16.8%) students had enuresis. In private school 567 students participated and 125 (22%) of them had enuresis.

Table-4 Comparison of Private and Government schools.

School	Gov. School	Pri-School	
Number	772	567	
Percentage	58%	42%	
N. Enuresis %	16.8%	22%	

Graph-3 Comparison of Government and Private school.



Following findings are showing relationship between UTI and enuresis:

In this study 201 (15.6) students had UTI out of 1339 students, and 72 (34%) had in the same time both (UTI and enuresis). However, 1130 students did not have UTI but 182 (16%) out of them suffered from enuresis. Hence, there is relation between UTI and enuresis  $\chi^2 = 8.85$  . ( $P<0.05$ )

Deep sleep and enuresis: The study indicated that 766 students had deep sleep, out of them 155 (20%) had enuresis and deep sleep. However, 99 (18%) students had enuresis without having deep sleep. Hence, there is no relation between deep sleep and enuresis. ( $\chi^2 = 0.159$  ,  $P>0.1$ )

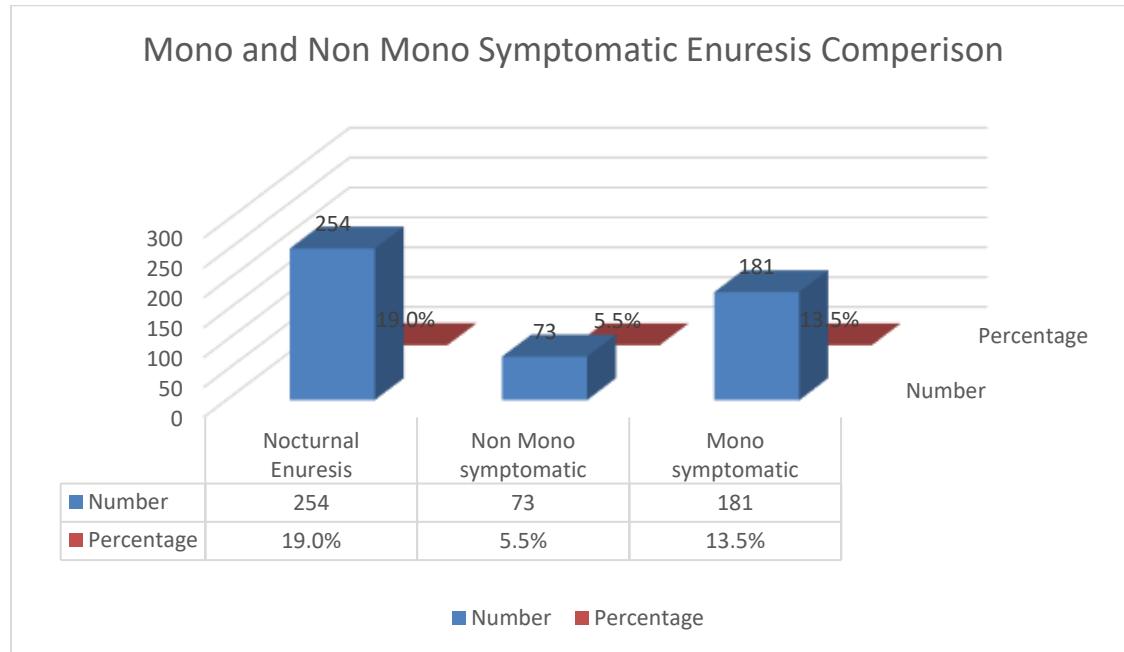
Relation between enuresis and circumcision in boys: The study shown that amongst 786 students 769 (97.8%) were circumcised and 176 (24%) had enuresis. Out of them 172 (22%) of them were circumcised and suffered from enuresis as well. Among all boys 17 students were not circumcised and out of them only 4 (23%) did not have enuresis. Hence, both circumcised (22%) and non-circumcised (23%) students had enuresis and there is no relationship between them. ( $P>0, 23 \times 2 = 0,9$ )

The mono symptomatic enuresis and Non mono symptomatic enuresis cases indicated that only 73 persons (5.5%) had Non mono Symptomatic enuresis. The below table shown:

Table-5: Differentiation between Mono symptomatic and Non mono symptomatic enuresis by number and percentage;

	Nocturnal Enuresis	Non Mono symptomatic	Mono symptomatic
Number	254	73	181
Percentage	19%	5,5%	13,5%

Graph-5: Differentiation between Mono symptomatic and Non mono symptomatic enuresis by number and percentage;



## Discussion

As we all know that Enuresis is a common problem in primary school children and causes economical, emotional and social distress to the families.

In Turkish study the prevalence reach to 28%.

This study conducted in primary schools children of Jalalabad city shows 19% prevalence of enuresis (254/1339 children). more common in boys than in girls (22% vs. 14%). In the presence of UTI the prevalence of enuresis is high (UTI+35% Vs. UTI-16%).

Data from other provinces of our country is not available for comparison. In comparison with our neighboring countries that share common culture, religion and social similarities, it seems that only Pakistan with 9.7% (7) has considerable difference with our study, but is same as Iranian study (18.5%) (3).

Meanwhile, the prevalence of the disorder in other countries like Saudi Arabia (15%), Sudan (17.4%), Ethiopia (20.8%) have close similarities with our study (8).

6: Table: Prevalence comparative table:

Ethiopia	Sudan	UAE	Pakistan	Iran	This study
20.8%	17.4%	15%	9.7%	18.7%	19%

The low prevalence of enuresis in Pakistan, could be related to the quality of life of them and difference in the definition of enuresis, which need further studies.

Other old studies indicated that deep sleep had relation with enuresis but this study shown that there is no relationship between them, which need more attention in future studies.

The study indicated that there was no relationship between circumcision and enuresis. As the sample size of non- circumcised children was very low, therefor it could be a good topic for future studies.

In this study indicated that enuresis is high in private school students (22%) than in Government school (16.8%).

Limitation of this study were, first of all sample was collected from schools children and in Afghanistan some children do not attend schools, so they were missed. Second, self-respondent questionnaire was used instead of face to face interview due to limitation of resources, and parents answered questionnaire based on their own interest, condition and knowledge, which could affect the results.

## Conclusion

This study indicated that high rang of children (19%) suffer from nocturnal enuresis. The cases are more common in boys compare to girls, which show relation with UTI. There is coherence between this study and other studies that are carried out in other countries. The huge amount of enuresis (19%) indicated that parents are not taking care of their enuretic children.

## Suggestions

As the study indicated high prevalence of enuresis, therefore the family members, parents and healthcare professionals should jointly think about the solutions for this problem.

Parents should be aware and educated not to insult their enuretic children, and they should seek proper ways of solution.

Screening need to be carried out for UTI in all primary schools students.

The study suggests that further robust studies need to be carried out to find out the root causes of enuresis.

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