

Nocturnal enuresis distribution and associated factors at Al-Yarmouk Teaching Hospital

*Sama Ahmed Sadeq
(MBChB)

** Waleed Arif Al-Ani
(MBChB, MSc, PhD “CM”)

*Wisam Ahmed Sadeq
(MBChB, MSc, D&V)

* MoH

**Al-Mustansiriyah Medical College

Abstract:

Background: Nocturnal enuresis is a common problem occurring among children living in Iraq. A problem that need to be studied thoroughly.

Objectives: To study the distribution and associated factors of nocturnal enuretic children

Methods: The data for the current descriptive study had been collected for attendant cases to the Urology consultation room at Al-Yarmouk Teaching Hospital through direct interview with the parents of children. The Study duration started from February 1st, 2020 to the end of June 30th 2020.

Results: 372 patients had participated in this study, the percentage of nocturnal enuresis between boys was 51.1% and in girls was 48.9%. It was found that nocturnal enuresis occurs in families with low socioeconomic status. The result revealed a higher increase in those residents of rural area (67.2%) and more in children with history of urinary tract infection (74.7%). Most of the children with enuresis (80.6%) had constipation and 83.3% had family history of enuresis (54.8% sister, 40% brother and 5.2% cousin).

Conclusion: The occurrence of nocturnal enuresis between boys and girls did not show great difference. Nocturnal enuresis occurs more in families with low socioeconomic status, rural area, with increment of family members. Constipation and urinary tract infection occur more with nocturnal enuresis.

Key Words: Nocturnal enuresis, Children.

Introduction:

Enuresis is involuntary voiding of urine, occurring at least twice a week for 3 months. Nocturnal enuresis (NE) can be defined as occurrence of any intermittent incontinence while a sleep in a child being at least five years old⁽¹⁾.

Primary NE occurs when the child has never had a period of nighttime dryness that lasts longer than 6 months and this accounts for roughly 80% of cases; while Secondary NE occurs when non-voluntary discharge of urine returns after at least a 6-month period of nighttime dryness, and these cases account for the remaining 20 %⁽²⁾.

It has been thought that the condition is multifactorial. Numerous etiologic factors have been discussed, and various theories have been proposed: genetic and familial factors; genetic predisposition considered as the most frequently supported etiologic variable⁽³⁻⁶⁾, psychological factors; although it now appears that psychological problems are the result of enuresis and not the cause for its occurrence⁽⁷⁾, bladder problems; even bladder function falls within the normal range in children with NE⁽⁵⁾ while the volume at which the bladder empties itself may be less in those with enuresis⁽⁸⁾, arginine vasopressin; as circadian rhythm in the secretion of arginine vasopressin, the antidiuretic hormone⁽⁹⁾, and sleep disorders⁽¹⁰⁾.

The present study aimed at exploring distribution of nocturnal enuresis and some

associated factors among samples of attendant patients at Al-Yarmouk Teaching Hospital

Methodology:

A descriptive cross-sectional study was conducted on data collected from attendant cases to the Urology consultation room at Al Yarmouk Teaching Hospital. The study duration started from 1st of January 2020 to the end of June 30th 2020 during working time.

The sample included all enuretic children 5-15 years from both sexes who visited Urology Department at Al Yarmouk Teaching Hospital.

Interview questionnaire had been designed by the researchers after reviewing similar previous studies, and then validated by community and family medicine scientific community. The questionnaire includes the following information. The questionnaire include two sections: the first section (demographic data) was used to document the socio-demographic data for children include the following; age (5 to 15), gender, socio-economic status had also been taken for father and mother, parental education level whether primary secondary or higher education, family size, room sharing, whether children were alone or sharing rooms with their family members, inhabitation (which means living in rural and urban area).

The second section of the questionnaire was about the description of enuresis as: for NE the DSM-

IV defined as the occurrence of at least two wet nights per week for three consecutive months was used, history of UTI, constipation were one of the main condition that enquired, frequency of wetting (number of nights stay dry each week) and family history of wetting for (father, mother, aunts, uncles, brothers and sisters), previous medical therapy whether drugs or behavioral therapy was used, psychological behavior and reaction of the parents towards their child problems, types of medicine that was used for treatment of NE like imipramine, desmopressin and herbal, the ways to stay dry for children were asked to the parents, whether using diapers drinking less after dinner, using enuresis alarm (device that make noise when wet), alarm clock was used or not also to wake child at night, parents wakes at night, punishment for wet night, caffeinated drinks were asked about if the children had it (soda, tea, or coffee), whether NE considered a problem for the parents, if they suffer from embarrassment on vacations, if they wash sheets or pijamas for their children a lot, getting teased by their children's problem, psychological problems for enuretic children (Aggressive behavior, School bullying), medical problems for the children such as occurrence of learning problems, attention deficit disorder (is a mental health disorder that can cause above-normal level of hyperactive and impulsive behavior), diabetes is a (metabolic disease that cause high blood sugar), kidney problems (include problem with urine output retention fluid leg swelling), and sleep problems (like deep sleepers confused awakenings, night terror, sleep walking) The urological department had been visited three times per week; each visit took nearly 4 hours. Convenient adults parents of enuretic children who attended to the department had been asked to participate in the study, the researcher introduced herself to them and then explained the objective of the study to them and inform them that the collected data will only been used for study purpose and no need to mention their names.

Data were gathered by face-to-face interview between the researcher and each one of the respondents, filling the questionnaire with their answers after explaining each question in it. Each questionnaire takes nearly 15 minute to be filled. Verbal consent was obtained from each study participant. The respondents were informed that their inclusion in the study is voluntary.

Analysis of data was carried out using the available statistical package of SPSS-27 (Statistical Packages for Social Sciences- Version 27). Data were presented in simple measures of frequency, percentage, mean, standard deviation, and range (minimum-maximum values).

Results:

A total of 372 children, aged between 5-15 years were investigated (Mean 7.2 ± 2.4). There was no obvious difference for NE between boys 51.1% and girls 48.9% in our descriptive study (table 1).

Regarding father education for nocturnal patients, we found that 53.5% finished primary education, 46.5% finished secondary and higher education. Regarding mother education for nocturnal patients we found 61.8% finished primary education, 38.2% finished secondary and higher education. In our study we found that NE occur in families with low socioeconomic. 45.7% of fathers and 74.5% of mothers were not working. The result revealed great association for residents, in rural area 67.2% of patients, while 32.8% of patients' residence was in urban area (table 2).

About 43% of children got benefit from using diaper as one of the behavioral therapies for management for enuresis. There are other ways like drinking less water, 32.8% used this method, 4.6% used alarm clock wake at night, and 6.2% used punishment for wet nights (table 3).

The study showed that 91.9% of patients have room shared while 8.1% not shared. 53.2% of patients' birth order was in 1-3 sequence, while 46.8% of patients' birth order was in 4-7 sequence and more. Regarding family member, increment of enuresis occur more with increment of family member.

This study showed that 80.6% of patients had constipation and 83.3% had family history of enuresis (54.8% sister, 40% brother & 5.2% cousin) both had great impact on occurrence of NE (table 4).

Nearly half (53.8%) of parents of nocturnal enuretic children, found enuresis a great problem to concern. Such as these problems were embarrassing on vacation, washing sheets pajamas of their children a lot, and parental upset). 86.6% of enuretic patients had medical or health problems, like UTI, constipation, sleep problem, learning problem) (table 5)

age and gender distribution of the sample (n=372) .

		No	%
Age (years)	5---9	296	79.5
	10---15	76	20.5
	Mean±SD (Range)	7.2±2.4 (5-15)	
Gender	Boy	190	51.1
	Girl	182	48.9

Table 2: The distribution of the study group (n=372) regarding parents' education, work and residence

		No	%
Father education	Primary	199	53.5
	Secondary	99	26.6
	College & Higher	74	19.9
Mother education	Primary	230	61.8
	Secondary	120	32.3
	College & Higher	22	5.9
Father employment	Governmental employee	61	16.4
	Not working	170	45.7
	Worker	139	37.4
	Retired	2	0.5
Mother employment	Governmental employee	73	19.6
	Worker	22	5.9
	Housewife	277	74.5
Residence	Urban	122	32.8
	Rural	250	67.2

Table 3: The relation of the study group (n=372) with ways to stay dry at night, drinking caffeinated drinks.

		No	%
Ways to stay dry at night	Diaper	160	43.0
	Drinking little of less after dinner	122	32.8
	Alarm clock wakes at night	17	4.6
	Parent wakes at night	50	13.4
	Punishment for wet nights	23	6.2
Sometimes drink caffeinated drinks	170	45.7	
Use of Medicine (imipramine and desmopression)	240	64.5	

Table 4: The distribution of study group (n=372) according to constipation and family history of NE.

	No	%	
Hard to have bowel motion during the day	300	80.6	
Either of parents uncles aunts cousins had enuresis as a child	310	83.3	
Family member have enuresis	Sister	170	54.8
	Brother	124	40.0
	Cousin	16	5.2

Table 5: The distribution of study group (n=372) according parental concern and other medical problems.

	No	%	
Enuresis is a problem for parents	200	53.8	
Type of parents problem*	Embarrassing on vacations	99	49.5
	Child have to wash sheets/pajamas a lot	188	94.0
	Child getting teased	45	22.5
	Parental upset	101	50.5
	322	86.6	
Other medical or health problem			
Children with medical problems	Constipation	300	93.2
	Sleep problems	35	10.9
	Attention Deficit Disorder	22	6.8
	Learning problems	3	0.9
	Kidney problems/ Bladder infection	300	93.2
*More than one problem was selected			

Discussion:

NE is considered as a common problem among children and its frequency decreases with increasing age of the children ⁽¹¹⁾. There was no gender predominance in this descriptive study observed for NE boy and girl, 51.1% boy while 48.9% girl in spite that male predominance was detected in other studies. ⁽¹²⁾

A great relation was found between NE occurrence and educational level for father and mother. In Turkey, Gümüş *et al.* showed that the low educational level for father and mother was associated with NE⁽¹³⁾ Spee-Van der Wekke found with his colleagues that the educational level of parents was not related to the prevalence of NE in their study⁽¹⁴⁾. This study showed that most of the parents' educational level was low and low socioeconomic status of the family was associated with NE. Chiozza *et al.* found that the prevalence of NE was more in families with low socioeconomic level⁽¹⁵⁾.

Enuresis was more common with rural inhabitation than with urban inhabitation; this might

be related to circumstances like poor sanitation, lower educational level of parents and smaller monthly income for rural families as compared to those for urban families. Gümüş *et al.*⁽¹³⁾, Chiozza *et al.*⁽¹⁵⁾, and Gur *et al.*⁽¹⁶⁾ also showed that lower educational levels and lower socioeconomic level for the parents were both associated with NE occurrence.

Enuresis increased with increment of family member. The increment of sibling number had a great impact factor in Turkish children ⁽¹¹⁾. Enuretic patients occur more in room shared than those who live in non-shared rooms. Gunes *et al* found the same result regarding room sharing. ⁽¹⁷⁾ In this study, however, birth order was not associated with NE; Kanaheswari also showed that birth order was not associated with NE occurrence ⁽¹⁸⁾. Rona *et al.*, in their study for the population of England and Scotland, found that NE occurrence was more likely in a child who was not the first-born child in the family⁽¹⁹⁾.

In the current study NE occurs more with history of urinary tract infections (UTI). The reason for this was not clear, however, it has been suggested that the strong contraction of the proximal urethra

and pelvic floor muscles may cause UTI by leading to urethra-vesical reflux of bacteria in the proximal urethra⁽²⁰⁾, Gunes *et al* found the same relation⁽¹⁷⁾ while Bachtiar *et al* found no such relation⁽²¹⁾.

It was found that 35.2% of children stay dry less than 2 nights per week. Ozden *et al* mentioned that 33.3% had severe NE as bed wetting every night in Turkish children⁽¹¹⁾. In southeast Anatolia, the prevalence of "marked" enuresis (at least weekly) was 9.8%.⁽²²⁾ In Karachi, 30% of the children with bed wetting every night⁽²³⁾. Wang *et al* found that the prevalence of bed-wetting occurrence every night for children was 24.6%⁽²⁴⁾. One-third of the children with NE almost wet every night in those mentioned studies. Our result is consistent with other studies.

About 43% of children got benefit from using diaper as one of the behavioral therapies for management for enuresis, Kushnir *et al* found that sleep pattern of children with enuresis using night diapers is similar to those for healthy children.⁽²⁵⁾ There are other ways like drinking less water 32.8% used this method, 4.6% used alarm clock wake at night, and 6.2% used punishment for wet nights. The parents in Korea⁽²⁶⁾ usually use restriction of fluid intake and wake the child at night to void than were parents in either New Zealand⁽²⁷⁾ or the USA⁽²⁸⁾.

The study showed that 6.2% of children, their parents used punishment for wet nights as a way to stay dry. Some mothers believe that their children are able to control urination during sleep and therefore may use punishment for their action. Bachtiar *et al* study showed that 9.2% of the children with NE, their parents use punishment as a way to stay dry⁽²¹⁾.

The current study showed that 45.7% had drunk caffeinated drinks, this data disagree with the result of Warzak *et al* found that caffeine consumption was not associated with occurrence of enuresis⁽²⁹⁾

Majority of children (80.6%) had history of constipation; Inan *et al* also found that constipation occurrence was more frequent in children with NE.⁽³⁰⁾

A high percentage of children with NE (83.3%) had family history of enuresis. The results of a study conducted in Turkey by Gümüş *et al* mentioned positive familial history of NE in 75% of enuretic children.⁽¹³⁾

Parental concern regarding enuresis was studied, enuresis was considered a problem for parents in 53.8%, and 22.5% of enuretic children got teased. Results indicate that 46.4% parents of the children with NE and 57.1% of children think that "it a great deal"⁽¹⁷⁾. Kanaheswari *et al* reported in his study that 73% parents of the children with NE think it is a problem and 76% of children with NE.⁽¹⁸⁾ Foxman *et al* also found that two-thirds of American

parents of enuretic children worried about the symptom of NE, and over half the children were disturbed by the occurrence of the problem⁽³¹⁾. Lee *et al* reported similar findings in Korean children.⁽³²⁾

The study showed that 86.6% had medical problem like (learning problem, constipation, and sleep problem). Vande Walle *et al* and Chang *et al* found that NE was associated with the occurrence of childhood behavioral problem like aggressive behavior low social competence and school performance^(33, 34). Sleep problem found in children with NE was difficulty in waking during the night.⁽³⁵⁾

Only 8.6% of children had psychological problems, Sarici *et al* found that NE may arise from psychological problems.⁽³⁶⁾

Regarding the use of medicine, more than traditional or behavioral method; the most widely used methods for treatment were medication (64.5%) like imipramine and desmopressin. Also in Turkey⁽¹¹⁾ the most preferred way of management was medication (59.5%) while other studies use traditional management, Og *et al* from Turkey reported that the families mostly choose the traditional methods to treat NE⁽¹²⁾.

In conclusion, NE occur more in families with low socioeconomic than other, more in rural area than urban areas and there was increment of nocturnal enuretic patients with increment of family members, and more with families who had history of NE. Constipation and urinary tract infection occur more with NE that showed a great association.

It is recommended that the community health professionals need to strengthen and improve the perception of people towards the NE at the community level providing relevant information and well-coordinated public education through mass media, social network and schools is necessary.

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