

Original article

Prevalence and Risk Factor of Nocturnal Enuresis among primary school children in Tripoli Libya 2021.

Aida Mohamed Ben Abdullah¹. Aida Emhemmed Elkituni², Amal Ibrahim said³

1. omerElmokhtar polyclinic Tripoli Libya.

2. National Diabetic & Endocrine center Tripoli Libya.

3. open university of Libya. And center of man power development in ministry of health.

Corresponding author: Aida Emhemmed Elkituni.

Email: aidatamens@gmail.com

Tripoli-Ben ashour 00218925450081

Abstract

Background: enuresis for most children is a source of shame and anxiety with profound effect on self-perception, relationship and school performance, hence the study of nocturnal enuresis in Tripoli city. Aim of the study: to determine the prevalence of nocturnal enuresis and identify the possible risk factors among primary school children in Tripoli city. Materials and Method: A cross-sectional survey was performed between March to May 2021, the study subjects primary school children aged 6-12 years taken randomly from 10 schools in Tripoli city. A special form questionnaire was used to collect data which included the following socio-demographic factors, family characteristics and factors related to the presence of enuresis. Statistical analysis was done by SPSS 22 package program. Results: A total of 500 primary school children with a response rate of 418 (81.6%), the prevalence rate of enuresis was 19.6%, more common in males, in the age group from 6-8 years, and also children with birth order from 2nd to 4th were more affected with enuresis than others, most of enuretic children were hard to awaken (16.5%), faced stressful events (17%), burning of micturition (11%), and complained of other diseases (10.5%). Conclusion: The study revealed that the prevalence of enuresis was 19.6% with a higher prevalence in boys. High education level of parents, sleeping pattern, existence of stressful events, positive family history of NE, large family size, more children in household and presence of other diseases especially urinary tract may act as risk factors for NE.

Key Words: Prevalence, Nocturnal Enuresis, Risk factors.

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Introduction

of enuresis is genetic and familial factor that when both parents were enuretic as children their offspring had risk of having nocturnal enuresis[6][2], other causes are psychological factor, Neurologic developmental delay, bladder problem, Constipation, infection, Insufficient antidiuretic hormone, Sleep disorder(deep sleep, sleep walking) and stress[7][4]. Data on the prevalence of NE and their risk factors amongst school children in our country are uncommon, therefore the aim of the study is presented to determine the prevalence of NE and associated their risk factors of this problem in our community.

Material and Methods

definition of the Enuresis; as unaware bed wetting at night at least once a month after 5 year. The questionnaires were given randomly to the students to be answered by their parent. The students were instructed to give it to their parents, to read, and fill them completely. The social worker helps us in the collection of the questionnaire from students within three week. Some students not wanting to participate were recorded as not responding. The questionnaires were spread to 500 students; only 418 students return it back, with response rate 81.6%. the data sorted and analyzed by using (statistical package for the social sciences) spss version 21. Into; count and percentage. And the chi-square test, used to evaluate the relationship between the rate of NE and the socio-demographic and all those risk factors. The level of significant was set at p .value= 0.05.

Results

of the students between 6-8 years age (55.7%), about (64.6%) of them have more than 5 sibling, and (58.1%) of them their father and mother in high education level, in table (2) presented that, the Most common risk factors of enuresis in the students, (41.1%) hard to awaked, (28%) have history of stress events. (24.4%)

Nocturnal Enuresis a common clinical problem in children, It is commonly called bedwetting and defined as involuntary urination while asleep after the age at which bladder control usually occurs [1]. In united states children not considered enuretic until they have reached 5 years, 15%-25% at 5 years, But with each maturity bedwetting decline about 15% [2] [3], While in united kingdom 30% at 5 year and fall to 9.5% at 9 years [3] [11]. In Jordan enuresis 23.8% at 5 years then decline to 8.4% at 8 years. But in Moroccan 35% [4] [12], in Aden 17% of 5 years children [5] [13]. Many etiological factors for NE, but the most common causes

ACross sectional survey was conducted in primary schools in Tripoli city after it was approved by the Ministry of Education in Libya government. We distributed 500 questionnaires to parents of 6-12 years old students from first class to six class had taken as candidates for this research in 10 primary schools in Tripoli city. Every school was giving 50 questionnaires from the period of first March to last May 2021. The permission was obtained from parents before collection data A special questionnaire was prepared, and writing in Arabic language, which including information related to socio-demographic factor, physical status of children whether he or she enuretic, family history and information related to risk factors such as parent education, family size, birth order of child, sleep pattern, stress events, and past history of diseases. and also contain

In our study, question were spread to 500 students in 10 schools in Tripoli city, only 418 return it back; with response rate of (81.6%). the parents answered the questionnaire that their children are non-enuresis students were 336 (80.4%) while those who had enuresis were 82 students (19.6%) as in table (1). (57.7%) male, most

statistically significant relation $p=0.031$. the parents education plays important roles in the rate of NE the study revealed that , the rate NE is increased with increased level of father education, 3.8%primary,10% secondary, 5.7% high level, but in mother education reported more in secondary was,

10% , these finding were highly statically significant in both education level of father , and mother $p=0.021$, $p=0.000$.respectively. the other personal risk factors, including; (16.5%)hard toawaken, (13.8%) positive family history (17%)faced stressful events, (11%) burning of micturition, and (10.5%) complained of other diseases, all of these risk factors significantly associated with prevalence of NE in the students with the same p value of 0.000. as in

table (4).

positive family history of NE (17.2%)have other diseases, while(15.8%) complaining of burning of maturation. Table (3) shows relation between enuresis and socio demographic characters and other personal risk factors in children by their history of NE, the younger children (6-8 year) more frequently reported the problem of enuresis(10.7%)than age group 9-12 years was (8.9 %) $p=0,867$ also the prevalence of NE was higher in boys than girls (11.7%, 7.9%) respectively $p=0.709$.Morelese the rate of NE was found to steadily increase with increases in the number of sibling from(1%, to 5.5%, to 13,2%) in the one , two-four, and more than five sibling respectively= 0.749. all these risk factors we did not finding statistically significant relation .the study revealed higher rate NE in birth order of child from second to fourth(8%) than others, and these results

Character	NO
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Table 1: Sociodemographic characters of the study sample in Tripoli 2021 (N=418).

		%
Prevalence of NE		
Yes	82	19.6
No	336	80.4
Age in years		
years 8-6	233	55.7
years 12-9	184	44
Gender		
Males	240	57.4
Females	178	42.8
Father education		
Primary	26	62
Secondary	149	35.6
High school	243	58.1
Mother education		
Primary	35	8.4
Secondary	140	33.5
High school	243	58.1
Number of sibling		
One	15	3.6
Two-four	132	31.6
≥five	270	69.6

Table 2: Risk factor characters of enuresis in the study sample in Tripoli2021 (N=418).

Character	Frequency	Percent
Pattern of sleep		
easily to awakened	246	58.9
hard to awaked	172	41.1
Family history of enuresis		
Yes	102	24.4
No	316	75.6
Presence of other disease		
Yes	72	17.2
No	346	82.8
Burning of micturition		
Yes	66	15.8
No	352	84.2
Stress events		
Yes	117	28.0
No	301	72.0

Table 3: Relation between enuresis and sociodemographic character in the study sample in Tripoli.

Character	Enuresis		P Value
	Yes	No	
Age in years			
6-8	45(10.7%)	188(45%)	0.867
9-12	37(8.9%)	147(35%)	
Character	Enuresis		Value
	Yes	No	
Female	35(7.9%)	145(34.7%)	
Pattern of sleep			
Father education			0.021
Easily awakened	13(3%)	233(55.7%)	0.000
Primary	10(2.4%)	16(3.8%)	
Hard to awaked	69(16.5%)	103(24.6%)	0.000
Secondary	32(7.7%)	117(28%)	
Family history of enuresis			
High school	40(9.6%)	203(48.6%)	0.000
Yes	58(13.8%)	44(10.5%)	
Other education			0.000
Primary	16(3.8%)	24(5.7%)	
Secondary	42(10%)	98(23.4%)	0.000
High school	24(5.7%)	219(51.4%)	
Presence of other disease			
Yes	44(10.5%)	28(6.7%)	0.749
No	38(8.6%)	308(73.7%)	
Number siblings			
One	4(1%)	11(2.6%)	0.000
Burning of micturition			
Two-four	23(5.5%)	109(26%)	0.000
≥five	55(13.2%)	219(52.3%)	
OrderBirth			0.031
First events	26(6.2%)	155(37%)	0.031
Second-fourth	33(8%)	121(29%)	
>Fifth	23(5.5%)	60(14.3%)	

Table 4: Relation between enuresis and personal risk factors in the study sample in Tripoli

No	11(2.6%)	290(69.3%)	0.000
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Discussion

improve spontaneously, decrease with age is thought to be mostly due to spontaneous improvement. Male gender was one of the risk factors of EN in our results as the frequency was high in males (10.7%) when compared with females (8.9%) which agrees with Egypt (11), and no gender predominance was observed for EN in the previous Turkey study (13). Another risk factor strongly related to nocturnal enuresis in our study is education of parents, we found that the rate of enuresis increases from (3.8%) in children with primary school mothers to (10%) in children with secondary school mothers, this concordance with other studies [25], [14]. This can explain that the educated mother is often working so she is busy, and has many obligations that distract her from taking care of her children and monitoring their behavior and health, especially with the presence of alternative, while the other mothers stay with her children and take care of them herself without help. Besides other factors, the role of heredity was found to be important in the etiology of EN, (13.8%) have positive family history, in this study, also reported in others previous studies.

Nocturnal enuresis is a public health problem that may cause emotional and social problems for both child and family, but a difference exists regarding its prevalence among countries and communities. We found the prevalence of NE to be 19.6% in primary school children. Our figure is higher than that reported in other countries such as, 15% in Saudi Arabia (8), 6.8% in Iran (9), 8.6% in India (10), in Egypt 10.13% (11), and 28.2% in Yemen (5). However, a study from Australia had nearly a similar prevalence of 18.9% (12) to the one found in our study. It is possible that the reason for the increase in prevalence of enuresis in our study is the neglect of the parents for this problem and ignorance of its effects and their belief that it will disappear with increasing age. While in other studies the low prevalence may be related to early awareness and education of this problem, our results revealed that the rate of NE frequency was higher in younger age of students as it was decreased by age from 10.7% at 6-8 years to 8.95% at 9-12 years, also the rate of NE decreased with increase in age of students from 63.2% at 6-8 years to 36.8% at 9-12 years in the study reported in Egypt (11). As EN is mostly believed to

associated with emotional distress in both children and parents, which is reversible once the children become dry, This negative feeling probably could have an either positive or negative influence in the school performance of children. Also we found that the incidence of NE increased with large families, and birth order of students as in other study [11]. Other risk factors related to enuresis in our study is presence of other diseases (as DM, constipation), and urinary tract infection as mentioned in previous study [25]. Our findings provide information on the prevalence of NE among school children in Tripoli city, Libya, its common problem among school children, especially younger age, males, and also more in children with educated parents. The results suggested that sleeping pattern of children, existence of stressful events, family history of NE, large family size, more children household and presence of other diseases especially urinary tract infection is imported risk factors associated with NE. Therefore it is necessary to inform the parents about how to avoid, treat, and risk factors associated with the nocturnal enuresis.

[11],[15],[16],[17],[18],[19],[26]. According to our results we concluded that there was a significant association between positive family history of NE, hard to awaken, and with the occurrence of NE in the students this comes in harmony with [11],[13],[20],[21] studies who considered them important risk factors of incidence of NE and significant associated with it. The explanation of this relation that poor sleep quality may play a role in the continuation of enuresis. A vicious cycle of sleep fragmentation is suggested as a reason for an increased arousal threshold, which, in turn, leads to failure to respond to full-bladder signals and continuation of enuresis. [22],[23],[24]. Stressful events of psychological and social origin form a risk factor of NE in students in our study. Especially with the current state of our country from war and chaos that affects children's psyche. These findings were consistent with previous studies. [12],[9],[26]. Enuretic children are frequently aware of the social and emotional consequences and, in particular commonly fear being discovered by others. Systematic studies support the notion that enuresis is

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