

Prevalence of nocturnal enuresis among children in Primary Health Care Centers of Family and Community Medicine, PSMMC, Riyadh City, KSA

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ABSTRACT

Background: Nocturnal enuresis (NE) is commonly known as any intermittent incontinence while asleep in a child being at least 5-year old. The families of the children having this disorder can be greatly worried because this disorder can lead to considerable emotional distress and some psychological consequences. This study is aimed to estimate the prevalence of NE among children and to identify the characteristics of children who has NE. The third aim is to identify the consultation pattern to solve this problem. **Methods:** A cross-sectional survey was performed in Primary Health Care Centers of Family and Community Medicine, PSMMC, Riyadh City, KSA, during 2017. **Results:** Out of 65 families that have children with NE, 38.7% was the frequency of bedwetting every night; 22.6% of the children were stressed as a result of new child birth; 14% of the families did not feel a family load of having children with NE; 29% of the families did not try to treat their children because of their improvement with time; and 12% of the families that tried to treat their children used fluid restriction and waked their children up frequently at night. **Conclusions:** The prevalence of NE was 18.5% among families with a higher prevalence in boys. Prevalence of NE decreased with increasing age with many children found of having stressful events in their life other than parents' divorce. We would like to refer that it is important for families that have children with NE to seek medical consultation immediately, which can lead to behavioral modifications.

Keywords: Children, families, familis, nocturnal enuresis, prevalence, Saudi Arabia

Introduction

Nocturnal enuresis (NE) is commonly known as any intermittent incontinence while asleep in a child being at least 5-year old.^[1] Although by definition even a single episode of awakening to urinate is nocturia, epidemiological evidence and expert clinical opinion both suggest that nocturia is likely clinically meaningful if a patient voids two or more times nightly.^[2] This disease is common and genetically complicated among children. The families of the children having this disorder can be greatly worried because this disorder can lead to considerable emotional distress and some psychological consequences, such as low self-esteem in children, some other psychological problems, and specially low school success.^[3] Bedwetting is usually diagnosed at 5 year and

beyond. However, it is generally left untreated until the children are 7- to 8-year old.^[4] Most studies have been investigated to find the etiology of enuresis, but most of them have found only risk factors for it because this disorder has a multifactorial etiology.^[5] Because nocturia is associated with a variety of clinical syndromes and disorders,^[6] the diagnostic approach is often challenging, and treatment may result in only small improvement.^[7,8]

Primary mono-symptomatic NE has prevalence decreasing from 16% at age 5 year, to 5% at age 10 year, and 1–2% at age ≥15 year.^[9–11]

It is particularly significant to seek for reasons of NE that may require further evaluation and therapy (e.g., diabetes mellitus, obstructive sleep apnea, encopresis or constipation, bowel and

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bladder dysfunction, etc.). It is hard to successfully treat enuresis if coexistent constipation is not addressed.

The management of secondary NE involves addressing the underlying stressor if one can be specified. Nevertheless, usually the children with secondary enuresis have no particular cause and are treated in the same manner as children with primary enuresis.^[12,13]

At least 90% of enuretic children have primary NE. Males outnumber females by a ratio of 3:2. The prevalence of NE decreases with age. Approximately, 15% of bedwetters achieve nocturnal bladder control yearly; however, enuresis persists in about 1% of those at age 18 year and 0.5% of adults aged 18–64 year.^[14,17]

When a cross-sectional study was done in Saudi Arabia before, it was illustrated that the prevalence of NE in children aged 6–16 year was 16.3% among boys and 13.8% among girls.^[18] A recent study of NE risk factors in school-age children in Egypt elucidated that pinworm infestation, constipation, and overconsumption of caffeine-containing beverages are potential reversible risk factors for NE in school-age children.^[19]

Materials and Methods

A cross-sectional survey was performed in Primary Health Care Centers of Family and Community Medicine, PSMCM, Riyadh City, KSA, during 2017 year from June 2016 to July 2017.

The study has been done using a personal interview with mother to inquire about any of their children having NE. During the interview, four-part structure questionnaire has been used after testing of its validity and reliability on a pilot study.

Results

Among 352 families that had children with NE, 18.5% (65) of the families were having children with NE [Figure 1].

From Table 1, 43.5% of those children were aged 5–6 year and 4.8% were aged above 11 year. Among those children with NE,

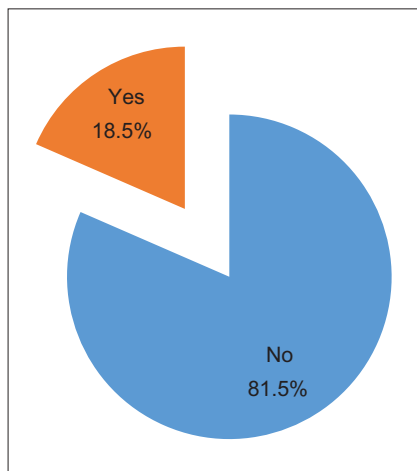


Figure 1: Prevalence of nocturnal enuresis in children 5- to <12-year old

62.9% were males, whereas 37.1% were females. Overall, 72.6% of those children were in primary school and 59.7% were first or second child in their families [Figure 2].

All of the children that had NE were wetting their bed during night time with 38.7% frequency every night and 56.5% frequency every week; 11.3% of children were wetting their bed during daytime as well with 71.4% frequency every week.

From Table 2, it is found that the highest frequency of bedwetting was three or more times weekly.

According to Table 3, 22.6% of those children were stressed as a result of a new child birth, whereas 6.5% were stressed as a result of parents' divorce; 67.7% were stressed as a result of other stressful events. Overall, 93.5% of those children with NE were having no diseases and 6.5% were having diabetes. About 58.1%

Table 1: Sociodemographic characteristics of children with nocturnal enuresis

Characteristics	No	%
Age group (year)		
5-6	27	43.5
7-8	20	32.3
9-10	12	19.4
11+	3	4.8
Gender		
Female	23	37.1
Male	39	62.9
Child birth order		
1-2	37	59.7
3-4	15	24.2
5+	10	16.1
Level of education		
Preschool	17	27
Primary school	45	72.6

Table 2: The frequency of bedwetting

	Once	Twice	Three times or more	Mean±SD
Daily	23 (37%)	1 (1.7%)	0	1.04±0.20
weekly	0	8 (13%)	27 (43.5%)	3.3±0.83
Monthly	0	1 (1.7%)	2 (3.1%)	2.75±1.20

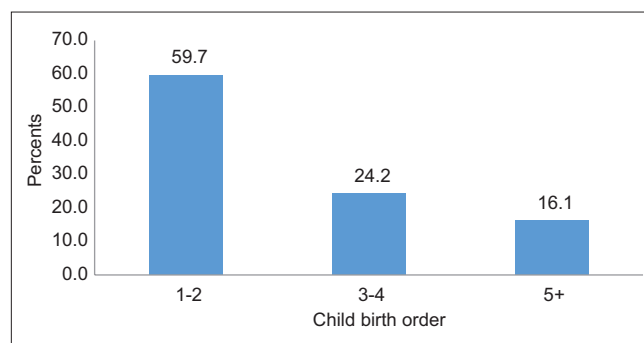


Figure 2: Nocturnal enuresis in children according to child birth order

of the families of those children did not get NE when they were children and 62.9% of these children with NE were circumcised.

Overall, 59.7% of the mothers of those children only had high school education, and 17.7% of those mothers had university education; 45.2% of the fathers of those children had university education, whereas 51.6% of those fathers had high school education; and 82.3% of the mothers of those children were not working and all of the fathers of those children were working. Shows that 59.7% of those children had more than five-member family. On the other hand, 40.3% had three to four family members. Shows that 88.7% of those children were having nuclear family.

According to Table 4, out of 65 families that had children with NE, 7 (14%) families did not think that they had a burden on them as a result of having children with NE. Nineteen (29%) families tried to treat their children for bedwetting. Four (6%) families justified their answer of not treating their children that they found their children were improving with time. Eight (12%) families who tried to treat their children used fluid restriction and frequently waked up their children at night to urinate. Four (6.1%) families who tried to treat their children used medical consultation in addition to fluid restriction as their mode of treatment. Nineteen (29%) families reported that their children responded to treatment. Also, 19 (29%) families agreed that they needed further health advice regarding their children. Nine (13%) families were allowing their children to share beds with each other.

Discussions

NE is recognized as a worldwide health disorder in young children.^[34] There are discrepancies regarding its prevalence among countries and communities. We found the prevalence of NE to be 18.5% among families in Primary Health Care Centers of Family and Community Medicine with a higher prevalence in boys, which is in-line with a previous survey in Saudi Arabia which found that the prevalence of NE were more in boys (16.3%) than in girls (13.8%).^[20] Also, our study is consistent with other studies in other countries, and there were 166 (53.9%) boys and 142 (46%) girls.^[21,22]

We also illustrated that the prevalence of NE decreases with increasing age, which is consistent with the results from some other previous studies (33%, 18%, 7%, and 0.7% of 5-, 8-, 11-, and 17-year-olds, respectively).^[23,24] The variations in prevalence can be affected by medical, psychological, socioeconomic, cultural, and racial factors.

Stressful events of psychological and social origin can be a risk factor of NE in school children. In our study, many children were found of having stressful events in their life other than parents' divorce. Our results were consistent with some previous studies performed in Iran and Yemen that show stressful events in the previous 6 months of the study were twice more frequently noted.^[24,25]

Table 3: Characteristics related to stress, disease, family history, and circumcision

Characteristics	No	%
Did your child expose to any of the following stressful events?		
Death of father	2	3.2
Divorced parents	4	6.5
New child birth	14	22.6
Others	42	67.7
Does your child have any of the following diseases?		
DM	4	6.5
No disease	58	93.5
Is there family history of nocturnal enuresis?		
No	36	58.1
Yes	26	41.9
Is your child circumcised?		
No	23	37.1
Yes	39	62.9

DM: Diabetes mellitus

Table 4: Consultation pattern

Characteristics	Yes	No
Disease burden	56 (86%)	9 (14%)
Disease treatment	46 (71%)	19 (29%)
Cause of	4 (6%) cases because of improvement by time	
No treatment	1 (1.5%) case still child	
Type of treatment	8 (12%) cases tried fluid restriction and frequently waked up	
	4 (6.1%) cases tried fluid restriction and medical consultation	
Response to treatment	19 (29%)	46 (71%)
Need of medical advice	19 (29%)	46 (71%)

Our results showed that all the children with NE were wetting their bed at night time with higher frequencies every week than every night. Also, some of the children (11.3%) were wetting their bed at day time as well with a high frequency every week. These results are consistent with previous studies and it is known that children with more frequency of bedwetting are likely to have this disorder for long time (17.1%).^[26]

Also, our results did not indicate a relation between the education and working status of the parents with the children having NE. However, some previous studies indicated the relation between the education of the parents and persistence of NE in children. Less educated parents are tending to punish their children severely, which exacerbates the disorder.^[27]

Our study also showed that family disease history of children having NE is not related to their children as 58.1% of those families were not having NE when they were children. This result is contrasting some other previous studies that found high rates of NE in children with a positive family history.^[28,29] Family factors such as the number of household members or the number of siblings in the family are also probably to be associated with NE. We found that more than five-member family size may likely be a factor associated with the occurrence

of NE. Several previous studies have also shown that NE was likely related to factors regarding family size and child rank in the family.^[30] However, our results showed that 59.7% of the children with NE were first or second order in their families, which also contrasting a study proved that the child number three in the family was the one to show NE.^[31] Other studies in the literature demonstrated that the second ranked child was the one who is likely to develop enuresis.^[32]

We would like to refer that it is important for families that have children with NE to seek medical consultation immediately, which can lead to significant improvement of their children. Medical consultation can include counseling the child and parents on effective behavioral modifications. The choice of treatment depends highly on the child's age and nighttime voiding patterns, and the desires of the child and family. Referral to a pediatric urologist can be indicated for children with primary enuresis refractory to standard and combination therapies, and for children with some secondary causes of enuresis, including urinary tract malformations, recurrent urinary tract infections, or neurologic disorders.^[33]

One of the limitations of our study is its cross-sectional design that cannot study the temporal trends in NE with child's increasing age. Therefore, further longitudinal studies are required to evaluate the causal associations between risk factors and NE. Other limitations are the lack of clinical confirmation of the condition, recall bias as the parents filled the questionnaire based on their recollection of the NE-related events, and lack of confirmation of children's school performance directly from the school authorities as opposed to relying on self-reported performance for this study. These factors can result in variations in the estimation of the prevalence and the role of various factors.

Conclusions

Our findings provide novel information on the prevalence of NE among children in Primary Health Care Centers of Family and Community Medicine with some differences in the rates comparing to the ones reported in other studies. We found the prevalence of NE to be 18.5% among families in Primary Health Care Centers of Family and Community Medicine with a higher prevalence in boys. We also illustrated that the prevalence of NE decreased with increasing age. In our study, many children were found of having stressful events in their life other than parents' divorce. Our results showed that all the children with NE were wetting their bed at night time with higher frequencies every week than every night. Also, our results did not indicate a relation between the education and working status of the parents with the children having NE. In addition, this study showed that family disease history of children having NE is not related to their children. Family factors such as the number of household members or the number of siblings in the family are also probably to be associated with NE. We would like to refer that it is important for families that have children with NE to seek medical consultation immediately, which can lead to

behavioral modifications. One of the limitations of our study is its cross-sectional design that cannot study the temporal trends in NE with child's increasing age. Therefore, further longitudinal studies are required to evaluate the causal associations between risk factors and NE.

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Conflicts of interest

There are no conflicts of interest.

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