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Original Research

Nocturnal enuresis-prevalence and risk factors among school going children in Udaipur, Rajasthan, India

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Abstract

Background: Nocturnal Enuresis also called bedwetting is involuntary urination while asleep after the age at which bladder control starts developing in children. Nocturnal Enuresis is a common problem affecting school aged children worldwide. It can cause a feeling of failure and result in guilt and stress in children as well as in their families.

Aims and Objective: To find out prevalence and underlying its risk factors in the age group of 6-16 years.

Material and Methods: It is a population-based study conducted during the year June 2018 to January 2019 on 328 children in the age group of 6 to 16 years residing at Neemachmata area of urban Udaipur (Raj.).

Result: The study was conducted on 328 children aged between 6 to 16 years. The prevalence of enuresis was 17.37%. There was a significant relationship between the prevalence of enuresis and age, sleep pattern, as well as high intake of substances like tea, coffee & soda. Stress and positive family history of bedwetting also affect the prevalence. Highest number of enuretics were found in the age group of 6 to 8 years (32.14%) out of total numbers of enuretics (57). 28 (17.7%) were male & 29 (17.05) females. This show that nocturnal enuresis was common in both the sexes. Lowest number of enuretics were found in the age group of 15 to 16 years of age. Number of enuretics were found to be higher in modified B.G. Prasad socio-economic class IV & least in socio-economic class II. Positive family history was present in 36 (37.50%) out of 57 enuretic children.

Keywords: Prevalence, nocturnal enuresis, risk factors

Introduction

Nocturnal enuresis affects approximately 5-7 million children in USA and 9-13% children in India. It's a common problem in pediatric patients. In spite of the causative factors are not well-established resulting in depression (low self-esteem) & school withdrawal among children and stressed parents appropriate intervention is justified for the affected child because of the potential consequences of family stress, social withdrawal and poor self-esteem^[1].

Enuresis refers to the persistence of inappropriate voiding of urine beyond the age of anticipated bladder control (age 4 to 5 years at the latest) or as the loss of continence after at least 3 months of dryness. The diagnosis is made when wetting occurs twice a week for 3 consecutive months^[2].

Enuresis may be further classified into nocturnal & diurnal^[2].

Aims & objective Aim of this study was to find out the prevalence & underlying its risk factors in the age groups 6-16 years.

Material and Methods

It is a population-based study was conducted on 328 children in the age group of 6 to 16 years residing at Neemachmata area of urban Udaipur Data were collected via a questionnaire completed by parents after taking consent and collected from door to door personally. The relationship has been found between the prevalence of Enuresis and the patient's age, gender, family history, sleep pattern, and use of tea, coffee, soda and the education level and employment status of parents and their monthly income. These findings were tested by means of X^2 test and $P < 0.05$ was accepted as statistically significant.

Ethical clearance

Clearance from Institutional Ethics Committee was taken before start of study.

Result

The study was conducted on 328 children aged between 6 to 16 years. Chi square test was used and we found the prevalence of enuresis was 17.37%. Relationship was formed between the prevalence of Enuresis and age, positive family history, sleep pattern, intake of tea, coffee, soda and stress. In the whole group enuresis was found to be equally common in both the sexes. No relationship was found with

family size, Parents education level and employment.

The prevalence rate of nocturnal enuresis in our study was (17.37%) Highest number of enuretics were found in the age group of 6 to 8 years (32.14%) out of total numbers of enuretics (57). 28 (17.7%) were male & 29(17.05) females. This show that nocturnal enuresis was equally common in both the sexes. Lowest number of enuretics were found in the age group of 15 to 16 years of age.

Number of enuretics were more in modified B.G. Prasad socio-economic class IV & least in socio-economic class II. Positive family history was present in 36 (37.50%) out of 57 enuretic children.

Table 1: Distribution of nocturnal enuresis according to Age & Gender (n= 328)

Character	Nocturnal enuresis				X ² P- Value
	Yes (n=57)		No (n= 271)		
	Number	Percentage (%)	Number	Percentage (%)	
1. Gender					
Male (158)	28	17.72	130	82.27	NS
Female (170)	29	17.05	141	82.94	
2. Age (in years)					
6-8 years (56)	18	32.14	38	67.85	P=0.001
9-11 years (105)	23	21.90	82	78.09	
12-14 years (121)	12	9.99	109	90.08	
15-16 years (46)	4	8.69	42	91.30	

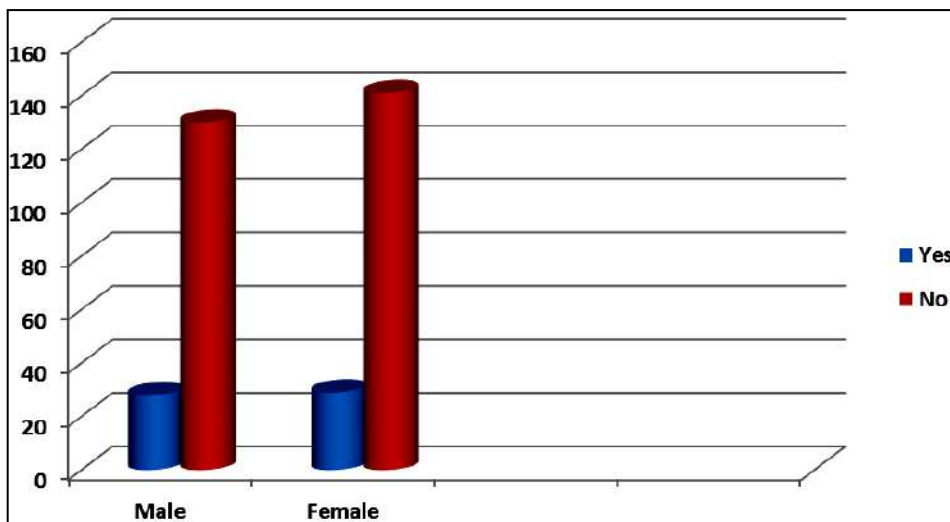


Fig 1: Diagram showing distribution nocturnal enuresis according to gender

Table 2: Family characteristics & nocturnal enuresis

Family characteristics	Nocturnal enuresis				X ² P- Value
	Yes (n=57)		No (n= 271)		
	Number	Percentage (%)	Number	Percentage (%)	
1. Family size					
i) 2-4 (30)	6	20.00	24	80.00	NS
ii) 5-7 (185)	34	18.37	151	81.62	
iii) 7-9 (113)	17	15.04	96	84.95	
2. Economic status					
i) Class I (59)	10	16.94	49	83.05	NS
ii) Class II (117)	17	14.52	100	85.47	
iii) Class III (135)	25	18.51	110	81.48	
iv) Class IV (10)	3	30.00	7	70.00	
v) Class V (7)	2	28.57	5	71.42	
3. Mothers education					
i) Middle School (216)	42	19.44	174	80.55	NS
ii) High school (99)	13	13.13	86	86.86	
iii) Graduate & above (13)	2	15.38	11	84.61	
4. Father's education					
i) Middle School (115)	15	13.04	100	86.95	NS

ii) High School (64)	14	21.87	50	78.12	
iii) Graduate & above (149)	28	18.79	121	81.20	
5. Mother's occupation					
i) Working (48)	7	14.58	41	85.41	NS
ii) Non-working (280)	50	17.85	230	82.14	
6. Father's occupation					
iii) Working (230)	34	14.78	196	85.21	NS
iv) Non-working (98)	23	23.46	75	76.53	

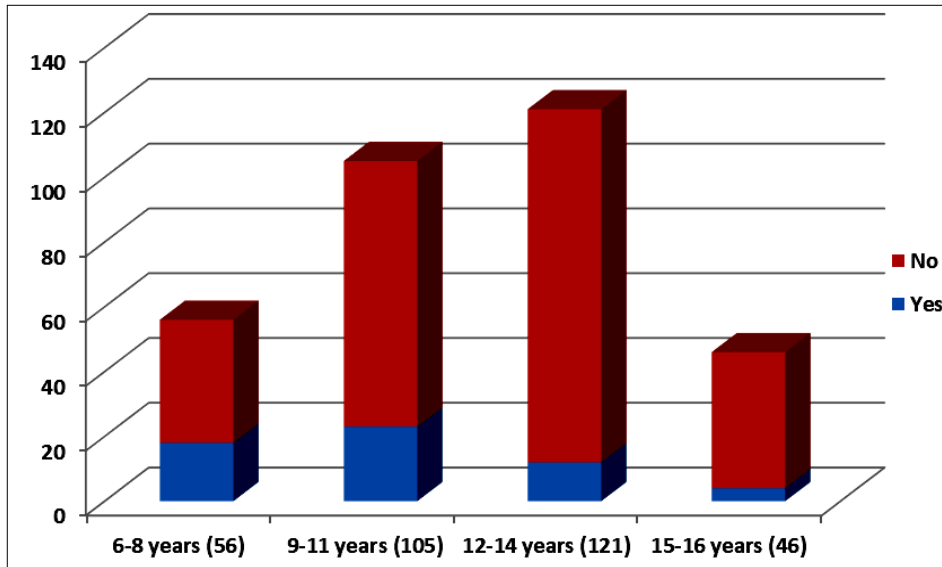


Fig 2: Diagram showing distribution nocturnal enuresis according to Age.

Table 3: Distribution of Nocturnal enuresis according to type & frequency (n=57)

1. Frequency			
v) Once/day		27	47.36
vi) 2-3 times/week		21	36.84
vii) 1-3 times/month		6	10.52
viii) > 2 times/ 6 month		3	5.26

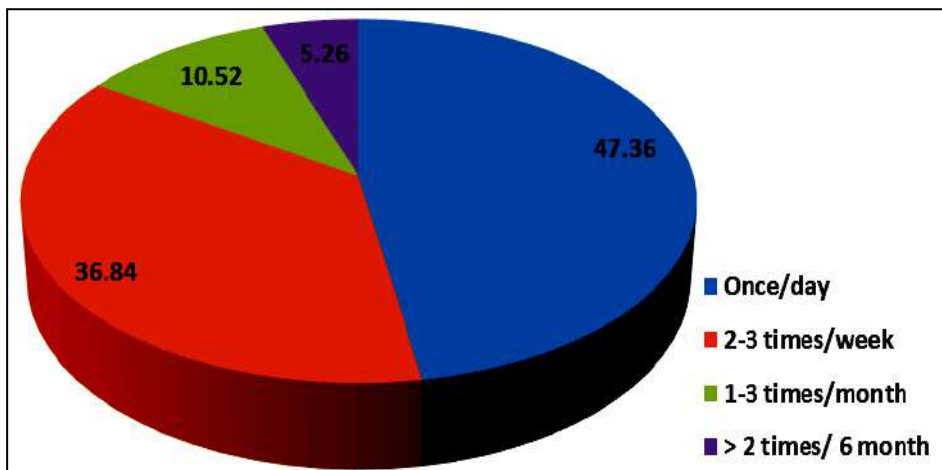


Fig 3: Diagram showing distribution of nocturnal enuresis according to frequency.

Table 4: Nocturnal enuresis in relation to family history

Family history of nocturnal enuresis	Nocturnal enuresis				X ² P- Value
	Yes (n=57)		No (n= 271)		
	Number	Percentage (%)	Number	Percentage (%)	
Positive (96)	36	37.50	60	62.50	P=0.000
Negative (232)	21	9.05	211	90.94	
Parents (7)	3	42.85	4	57.14	P=0.000
Siblings (74)	23	31.08	51	68.99	
Others (15)	10	66.66	5	33.33	
Non-enuretics (232)	21	9.05	211	90.94	

Table 5: Children’s characteristics & nocturnal enuresis

Characteristics	Nocturnal enuresis				X ² P- Value
	Yes (n=57)		No (n= 271)		
	Number	Percentage (%)	Number	Percentage (%)	
1. Sibling number					
i) None (4)	1	25.00	3	75.00	NS
ii) One (80)	15	18.75	65	81.25	
iii) Two (140)	24	17.14	116	82.85	
iv) Three (64)	12	18.75	52	81.25	
v) > Three (40)	5	12.50	35	87.5	
2. Birth order					
i) First (72)	10	13.88	62	86.11	NS
ii) Second (79)	13	16.45	66	83.54	
iii) Third (62)	16	25.80	46	74.19	
iv) Forth (115)	18	15.65	97	84.34	
3. Sleep					
i) Deep (98)	25	25.5	73	74.48	P=0.011
ii) Light (230)	32	13.91	198	86.08	
4. Day time enuresis					
i) Yes (6)	3	50.00	3	50.00	P=0.031
ii) No (322)	54	16.77	268	83.22	
5. Tea/ Coffee/ soda drinking habits					
i) Yes (73)	23	31.50	50	68.49	0.001
ii) No (255)	34	13.30	221	86.66	
6. Stressful events					
i) Yes (135)	33	24.44	102	75.45	P=0.005
ii) No (193)	24	12.43	169	87.56	

Discussion

In this study, the prevalence rate of nocturnal enuresis is (17.37%) almost comparable with that reported in epidemiological studies from various countries [3, 6]. The prevalence of enuresis showed a decreasing trend in older children’s [3]. This study showed no gender differences in prevalence rate. Supported by the other study [6].

Conclusion

Our findings suggest that nocturnal enuresis was a common problem among school children especially with low income, stress, and deep sleep pattern, higher intake of tea, coffee, soda, and family history of enuresis. Enuresis is a common pediatric problem and resulting in low school performance. The preventive, etiological, psychological & curative measures has be taken. We conclude that nocturnal enuresis is more common in the age groups of 6–8 years & it is found higher in families with B.G. Prasad socio-economic class IV. It is a self-limiting problem with a spontaneous cure rate of 14% per year in children 5- 9 years old and 16% per year in adolescents.

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