

# ENURESIS: ANALYSIS OF 100 CASES

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## ABSTRACT

*One hundred children with enuresis were studied to find out various factors responsible for this condition. Enuresis was more frequent in first born, service class and bottle fed children. There was a significant role of stress factors in causation of enuresis. We found a higher frequency of behavioral symptoms among children with enuresis. There was no significant correlation between enuresis and sex, education of parents, social class, sleep patterns, age of mother at marriage and intellectual grades of the children. Worm infestations, giardiasis, amebiasis and urinary infection were seen in 70% of cases. General body weakness, cold and nervousness were the common causes of enuresis in the parents' opinion. The main reason for not seeking the treatment at an early stage in view of parents' was that they thought enuresis a normal variant.*

**Key words:** Enuresis, Bed wetting.

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Enuresis is one of the most common and perplexing problems brought to the attention of the pediatrician(1). It is defined as (a) repeated, involuntary voiding of urine by day or at night; (b) at least two such events per month for children between the ages of 5-6 years and at least one event per month for older children; and (c) not due to a physical disorder such as diabetes mellitus or a seizure disorder(2). The enuresis may be primary (child never achieved consistent dryness) or secondary (child had a period of dryness of at least 3 to 6 months)(3,4). The etiology of enuresis remains obscure and to date no one theory has proved applicable(5). Likewise, a variety of treatments have been tried(6-9) but no one treatment modality has proved efficacious.

Enuresis presents a common bothersome problem for patients, parents, and pediatricians, and no definite theory for etiology and treatment have been established. It was, therefore, planned to study various aspects of enuresis and to assess its association with sex, birth order, feeding and sleep pattern, intellectual level, socio-demographic variables, various stress and other factors.

## Material and Methods

This study was conducted in the Civil Hospital, Ferozepur (Punjab). One hundred children either brought with history of bed wetting or found to have enuresis during interrogation for other symptoms comprised the material for the study.

The parents of these children were interviewed carefully to delineate age, sex, religion, birth order, income, occupation, literacy level of parents, feeding history, age of mother at marriage, bed wetting in parents, diurnal variation of bed wetting,

associated urgency and frequency of urination, presence or absence of fecal soiling, depth of sleep, urinary infections, worm infestations, any stress factors and opinion regarding cause and treatment of enuresis. A behavior symptom checklist(10) was filled in by interviewing the parents.

The affected children were physically examined which included a careful evaluation of abdomen, spine, genitalia, peripheral and central nervous system. The intellectual level was determined by using Raven's progressive coloured matrices and standard progressive matrices(11). Routine urine, stool, and urine culture were done in all cases. X-ray spine and IVP were done whenever required. Besides, a control group of 50 children without enuresis, matched with various socio-demographic variables were selected and screened similarly.

## Results

**Socio-Demographic Profile:** Of 100 children with enuresis, 55 were females and 45 males. Sixty five per cent were Hindus and 35% were Sikhs. Seventy four per cent of them were between 5-9 years and 26% between 10-20 years of age. A total of 60% children were of first birth order. The distribution of children by level of mother's education was 6% illiterate, 14% primary, 40% secondary, 30% graduates and 10% postgraduates.

Seventy per cent children with enuresis belonged to Social Class I and 30% to Social Class II. Fifty five per cent children with enuresis were from service class, followed by artisan (20%), businessmen (15%) and others (10%). Age of mother at the time of marriage was 17-20 years in 53% and 21-31 years in 47% of cases. Solety bottle feeding was given to 69% of

the affected children and remaining 31% had breast milk. Eighty four per cent children with enuresis were having deep sleep. Primary enuresis was seen in 60% while 40% had secondary enuresis.

**Presenting Complaints (Table I):** Common presenting complaints among children with enuresis were pain abdomen (34%), loose stools (18%), frequency of micturition (14%), sleep problems (14%), teeth grinding (12%) and nail biting (11%).

TABLE I--Presenting Complaints in Children with Enuresis

Presenting complaints	Number	Percentage
Pain abdomen	34	34
Loose stools	18	18
Frequency of micturition	14	14
Sleep problems	14	14
Teeth grinding	12	12
Nail biting	11	11
Oversensitivity	10	10
Thumb sucking	9	9
Vomiting	8	8
Poor at studies	8	8
Unable to sit still	8	8
School refusal	6	6
Constipation	6	6
Delayed milestones	6	6
Clumsiness	6	6
Recurrent fever	6	6
Vertigo	4	4

**Associated Problems:** Worm infestations, giardiasis, amebiasis, urinary infections, spina bifida and encopresis were found in 21, 19, 16, 10, 4 and 3% children, respectively.

**Intellectual Levels:** Intellectual grades of the affected children were Grade I in 6%, Grade II in 11%, Grade III in 63%,

Grade IV in 13% and Grade V in 7% cases. There was no significant difference between intellectual grades of children with and without enuresis ( $\chi^2 = 2.10$ ).

**Stress Factors (Table II):** Various stress factors found in association with enuresis were sharing bed with others (66%), fear of darkness (46%), bed wetting in parents and siblings (17%), overcrowding (14%) and quarrels between parents (12%). These stress factors were significantly more in affected children as compared to controls ( $p < 0.01$ ).

TABLE II--Stress Factors and Enuresis

Stress factor	Enuretic children (n=100) No. (%)	Control group (n=50) No. (%)
Share bed with others	66 (66)	22 (44)
Fear of darkness	46 (46)	5 (10)
Bed wetting in parents and siblings	17 (17)	2 (4)
Overcrowding	14 (14)	4 (8)
Quarrels between parents	12 (12)	2 (4)
Father alcoholic	10 (10)	2 (4)
Fear of teacher	8 (8)	0 (0)
Fits in parents	6 (6)	0 (0)
Frequent hospital admissions	6 (6)	1 (2)
Separation from parents	6 (6)	0 (0)
Frequent change in house	6 (6)	2 (4)
Mental problems in parents	4 (4)	0 (0)
No stress factors	15 (15)	30 (60)

**Behavior Characteristics (Table III):** A significant association of behavior symptoms and enuresis was also observed ( $p < 0.01$ ). The common symptoms were grinding teeth (60%), overactivity (40%), fear and worries (40%), problems of food intake and loss of temper.

**Parents Views regarding Causes and**

**Treatment of Enuresis (Table IV):** The commonest cause of enuresis in parents opinion was general body weakness (44%). Punishment (26%) was the most common form of treatment in their views. Forty six per cent of the parents did not seek treatment early because they thought it to be a normal variant of development.

TABLE III--Behaviour Characteristics

Behavior characteristics	Enuretic children (n=100) No. (%)	Control group (n=50) No. (%)
Grinding teeth	60 (60)	11 (22)
Overactivity	40 (40)	6 (12)
Fear and worries	40 (40)	9 (18)
Food intake		
(a) Less than normal	40 (40)	17 (34)
(b) More than normal	30 (30)	11 (22)
Night mares	30 (30)	7 (14)
Nail biting	30 (30)	13 (26)
Loss of temper		
(a) Once a month or more	20 (20)	4 (8)
(b) Twice a week or more	20 (20)	2 (4)
(c) Once a day	30 (30)	7 (14)
Thumb sucking	20 (20)	7 (14)
Restlessness	10 (10)	2 (4)
Stuttering	10 (10)	1 (2)
Tics	0 (0)	2 (4)

## Discussion

The present investigation revealed association of enuresis with multiple factors along with some new important facts. We found more cases of enuresis among older children compared to previous reports(12). It may be due to the fact that parents of these children did not seek treatment at an early stage and enuresis persisted. Furthermore, fear of revealing this problem

TABLE IV--Parents' Perceptions about Causes and Treatment of Enuresis

Cause of enuresis	No. (%)	Treatment	No. (%)
General body weakness	44 (44)	Punishment	26 (26)
Not knowing	21 (21)	No treatment	24 (24)
Cold	7 (7)	Not knowing	20 (20)
Nervousness	6 (6)	Hot foods	10 (10)
Sudden stoppage of breast feed	5 (5)	Tonics	10 (10)
Short birth interval	4 (4)	Sesame seeds and oil	5 (5)
Weakness of urinary bladder	4 (4)	Wine	3 (3)
Drugs	4 (4)	Homeopathic medicine	2 (2)
Excessive urine	3 (3)		
Lack of adequate care	2 (2)		

among grown up children can create anxiety and self conflict which potentiates the existing problem.

Various authors have reported more cases of enuresis among males(12-15) perhaps due to secretiveness and seclusiveness about this complaint in girls. Bakwin reported almost equal incidence of enuresis in both the sexes(16). But in our study 55% of the children with enuresis were females and 45% were males. In an earlier study, 72.7% of the children with enuresis were females(17).

Sixty per cent children with enuresis belonged to birth order I which is in concordance with observations of other authors(3). This may be due to lack of proper knowledge and experience of parents about toilet training in the first born baby. Oppel *et al.*(18) reported a higher incidence among children with birth order II and explained that birth order does influence a child's estimate of himself and so of his role within the family. Nigam *et al.* reported more frequent occurrence of enuresis among later born children and explained on the basis of insufficient toilet training which in turn could be due to large families(13).

Our observation of more cases of enuresis among working class families goes well with the earlier reports(3,8) because working class parents can spare comparatively less time for care and training of children.

Bed wetting in general occurs more frequently in children from lower than from higher socio-economic status(5,13,18) which may be due to delayed toilet training resulting in late achievement of bladder control(13). In our study, 70% of the children with enuresis were from Social Class I and 30% from Social Class II, *i.e.*, from the upper social strata. There may not be a direct association of lower socio-economic status and enuresis and the underlying cause may be some other stress factors.

The distribution of children by level of mother's education in the present study was comparable to that in previous studies(12). There was no significant correlation between literacy level of mother and enuresis. Enuresis has been reported to be more frequent in children whose mothers married at an early age(3) but we found no correlation between age of mother at the time of marriage and enuresis.

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In agreement with most of the previous

investigators(3,8), we found no significant difference in the intellectual levels between children with enuresis and controls.

In our study 69% of the enuretic children were given solely bottle feeding as compared to 26% in the control group. A similar association has not been reported by any of the previous authors and it is of great concern as practice of bottle feeding is on an increase in developing countries. This association can be explained on the basis that in bottle fed children, there is less psychological mother-child bonding, which may manifest as enuresis.

Our observation of associated infestations, infections, spina bifida and encopresis in children with enuresis are well supported by various studies(3,8,19).

There was no significant relationship between sleep pattern and enuresis as 84% of the enuretic children and 72% of the control groups had deep sleep though this was based on the parents observations only, as we could not find the exact time of arousal in these cases. Some investigators have reported that enuresis tends to occur during specific phase of sleep particularly as children rouse from the deepest stage of sleep(20,21) but this has been contradicted by others.

From this study it is evident that there is a significant role of environmental stress factors in causation of enuresis which has been demonstrated by some previous authors also(3,19). An association of behavior symptoms and enuresis was also found in our study. Tapia *et al.*(22) also found a much higher level of behavioral symptoms reported by parents of enuretic children. A study by Baker(23) showed no difference between subjects and controls on behavior checklist. Moffat reported that enuresis was more frequent in children who had emotional problems(24).

Various ritual treatments like punishment, hot foods, wine and tonics found in our study were comparable to those described in the literature(7).

To conclude causation of enuresis is multifactorial and needs detailed evaluation of patients and their psychosocial environment. Further studies to confirm association of enuresis with various factors are recommended.

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