

Research Article

Enuresis improvement and its associated factors among children attending enuresis clinic at Rusaifah

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Abstract

Background: Enuresis is a common non-lethal health problem, causing a great deal of stress, confusion, and frustration to the suffering children, parents, and physicians.

Objectives: Finding and evaluating the scope of improvement and factors associated with it among children attending enuresis clinic at Rusaifah Family Medicine Postgraduate Training Center in Makkah Al-Mukarramah.

Subjects and Methods: The study was conducted at Rusaifah Family Medicine Postgraduate Training Center in Makkah Al-Mukarramah (June–August 2013). The targeted population was 600 patients with enuresis registered with the enuresis clinic at Al-Rusaifah Family Medicine Postgraduate Training Center. The sample size was calculated to be 150 using Epi Info, version 6. Medical records of patients with enuresis and a checklist designed by the researcher were used to obtain data covering all variables studied. Medical records were reviewed and the required information was pooled to a checklist designed to record data required for variables.

Results: The response rate was 100%. A zero wetting per week improvement was found among 149 (99.3%), 54 (36%), and 9 (6%) in the first month, first 2 months, and first 3 months, respectively. The mean age of children with improved enuresis was found to be 9.38 years in the first month, 9.09 years in the first 2 months, and 11.33 years in the first 3 months, respectively, compared to that of those with non-improved enuresis (5 years, 9.51 years, and 9.23 years in the first month, first 2 months, and first 3 months). This difference was not significant except in the first 3 months ($p < 0.04$). Other studied variables (age at toilet training, gender, nationality, spontaneous waking for toilet, fear of toilet, easy access to toilet, hospitalization, parental separation, delayed milestones, fluid restriction, school/home conflict, urinary tract infection symptoms, punishment, and rewards) were not significantly associated with the degree of improvement for enuresis.

Conclusion: The degree of improvement (zero wetting per week) was high in the first month then and then declined steadily in the first 2 months and in the first 3 months.

Key Words: Enuresis improvement, associated factors, Saudi Arabia

Introduction

Enuresis is a common non-lethal health problem, causing a great deal of stress, confusion, and frustration to the suffering children, parents, and physicians.^[1,2] It is one of the most perplexing problems brought to the physician and occupies considerable time in general practice with associated major social issues.^[3]

The term *enuresis* is derived from the Greek word *enourein*, which means “voiding urine.”^[4] It is defined as an involuntary voiding of urine during sleep, with a severity of “at least twice a week,” in children aged >5 years in the absence of congenital or acquired defects of the central nervous system.^[4] Enuresis may be classified as primary in a child who has never established urinary continence for more than 6 months or secondary if resumption of enuresis occurs after at least 6 months of urinary continence. Alternatively, enuresis is said to be monosymptomatic if it is uncomplicated or non-monosymptomatic if concomitant lower urinary tract symptoms exist.^[5]

Approximately 15% of children wet their bed at night when they are 5 years old. There is a spontaneous resolution rate of about 15% per year; therefore, by the age 15, only about 1% of adolescents have a problem with nocturnal enuresis.^[6]

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Enuresis affects 5–7 million children in the USA, but its worldwide incidence is not clear.^[5] It is seen worldwide across all races and cultures. It is a common problem among schoolchildren, and the reported prevalence varies across studies.^[7]

Enuresis, although seems to be ordinary, is a hidden problem^[8] that is crucial to be diagnosed and treated as soon as possible, as it can result in some psychological problems such as low self-esteem, shame and embarrassment, which affect the interaction of children with their friends and families.^[1]

Enuresis may cause secondary emotional and social problems in children who continue to wet their beds. Although enuretic children seem to have many accompanying psychological problems, it must be investigated whether these problems are the results of enuresis or etiological factors.^[8] In the UK, the increasing concern about enuresis has led to development of an enuresis resources and information center (Education and Resources for Improving Childhood Continence, ERIC).^[9]

Enuresis does not come under a particular or medical subspecialty. This is probably one of the reasons why independent bodies were formed solely to take care of enuretic children and their families.^[4]

This study was aimed at finding and evaluating the magnitude of improvement and factors associated with it among children attending enuresis clinic at Rusaifah Family Medicine Postgraduate Training Center in Makkah Al-Mukarramah.

Methods

The study was conducted at Rusaifah Family Medicine Postgraduate Training Center in Makkah Al-Mukarramah (June–August 2013). Makkah Al-Mukarramah, which is situated in the central Hijaz, is the most holy city in Islam and is the center of annual pilgrimage from all over the world. In Makkah, there are 7 modern hospitals and 28 governmental primary health centers. Rusaifah Family Medicine Postgraduate Training Center covers four large catchments areas: (1) Bader, (2) Aum-Aljoud, (3) Alzahraa, and (4) Algazaz. Each area has different population of different socioeconomic classes. The total number of populations is 18,163, of which 16,576 are the Saudis and 1587 are non-Saudis.

The targeted population was 600 enuretic patients registered with the enuresis clinic at Al-Rusaifah Family Medicine Postgraduate Training Center. The sample size was 150, which was calculated using Epi Info, version 6, based on expected frequency of enuresis of 45%, worst acceptable frequency of enuresis of 53% and 95% confidence level. Simple random sampling technique was used, where each enuretic medical record was given a number in series and then randomly selected using a scientific calculator.

The degree of improvement in the study was defined as complete dryness or zero wetting per week in the first month,

first 2 months, and first 3 months.^[10] Primary (continuous or persistent) enuresis was defined as continuous bedwetting since early childhood till attending the clinic. In other words, urinary continence for a period of at least months has never been accomplished whereas secondary or regressive enuresis was considered when the child has been toilet trained for at least 6 months after the age of bladder control and bladder control subsequently lost.^[10] The clinic adopted a wetting frequencies of two times or more per week as criteria for acceptance.^[10] Abnormal urine analysis was considered in the presence of white blood cell (WBC) count >100,000 cfu/ml along with >6 red blood cells (RBC) or >5 epithelial cells (17^[11]).

Medical records of enuretic patients and a checklist designed by the researcher were used to obtain data covering all variables under study. Reviewing the enuretic medical records and pooling the required information to a checklist designed to record data required for variables age, gender, nationality, family tree, age of toilet training, wetting frequency per week, type of enuresis, spontaneous waking for toilet training, fears of toilet, past stressful events, recent stressful event, urinary tract infection symptoms, and parents' attitude.

A pilot study was conducted on 20 of enuretic patients in Rusaifah Family Medicine Postgraduate Training Center to test the variables and methodology. Therefore, those who were included in the pilot study were excluded from the main study. The pilot study was beneficial in evaluating the process of data collection, entry, and analysis. Appropriate changes were made in the coding and variable design in the SPSS program. Permission from higher authority was obtained to conduct this study.

Data were entered to a personal computer using SPSS statistical program, version 18. χ^2 - and t-tests were used for statistical analysis. A p-value <0.05 was considered statistically significant.

Results

The response rate was 100%. A zero wetting per week improvement was found among 149 (99.3%), 54 (36%), and 9 (6%) children in the first month, first 2 months, and first 3 months, respectively, as shown in Figure 1.

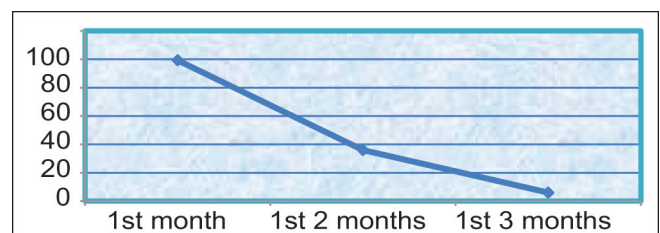


Figure 1: The rate of improvement (zero wetting per week) in the first 3 months

Factors associated with zero wetting per week

Age of Toilet Training

The mean age of toilet training among the children with improved enuresis was found to be 2.07 years in the first 2 months and 2.44 years in the first 3 months with wetting frequency of zero per week compared to the mean age of 2.17 and 2.12 years among those with not improved enuresis in the first 2 months and first 3 months, respectively. However, the difference was not statistically significant.

Age

The mean age of children with improved enuresis was found to be 9.38 years in the first month, and 9.09 years and 11.33 years in the first 2 months and first 3 months, respectively, compared that of those with non-improved enuresis (5 years, 9.51 years, and 9.23 years in the first month, first 2 months, and first 3 months). This difference was not significant except in the first 3 months ($p < 0.04$) [Figure 2].

Wetting Frequency per Week

The mean frequency of wetting among children with improved enuresis was found to be 5.38, 5.46, and 5.22 years in the first month, first 2 months, and first 3 months, respectively, compared with those with non-improved enuresis (1, 5.33, and 5.4 years at the same time period. However, the difference was not statistically significant.

Gender

There was no significant difference between males and females with improved and non-improved enuresis in the first month, first 2 months, and first 3 months.

Nationality

There was no difference across nationality of children with improved enuresis; 121 (81.8%), 45 (81.8%), 45 (81.8%), and 7 (77.8%) Saudis showed improvement compared to 76 (80%) and 114 (80.9%) non-Saudis who did not show improvement.

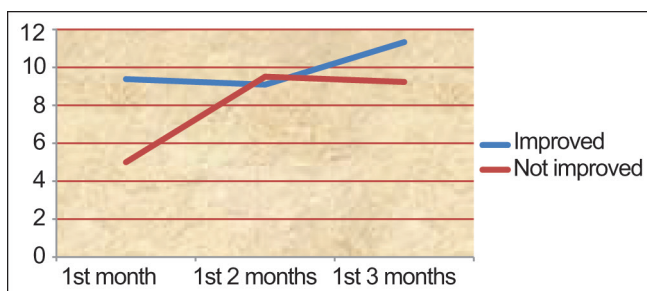


Figure 2: The mean age of children with improved and non-improved enuresis in the first month, first 2 months, and first 3 months

Spontaneous Waking for Toilet

There was no significant difference regarding spontaneous waking for toilet between children with improved and non-improved enuresis.

Fears of Toilet

There was no significant difference regarding fears of toilet between children with improved and non-improved enuresis [Figure 2]. of the study population, 34 (32%), 10 (6.7%), and 0 (0%) with fears of toilet showed improvement compared to none, 24 (16%), and 34 (23%) who did not show improvement.

Easy Access to Toilet among Children with Improved and Non-improved Enuresis

Easy access to toilet was reported by 146 (100%), 54 (37%), and 9 (6.2%) of children with improved enuresis (zero wetting per week) in the first month, first 2 months, and first 3 months compared with 1 (0.7%), 92 (63%), and 137 (93.8%) respectively, of those with non-improved enuresis ($p > 0.05$).

History of Hospitalization

There was no significant difference regarding hospitalization between children with improved and non-improved enuresis as 29 (96%), 12 (40%), and 2 (6.7%) of hospitalized children showed improvement compared to 1 (3.3%), 18 (60%), and 28 (93.3%) who did not show improvement in the first month, first 2 months, and first 3 months, respectively.

Parent Separation

There was no significant difference between with regard to parent separation among children with improved and non-improved enuresis: 3 (3.2%), 0 (0%), and 0 (0%) children with parent separation showed improvement compared to none, 3 (3.2%), and 3 (3.2%) who did not show improvement in the first month, first 2 months, and first 3 months, respectively.

Birth of Sibling

Birth of a sibling was not significant factor among children with an improved and non-improved enuresis: 101 (67.8%), 39 (70.9%), and 5 (55.6%) of children with report of birth of a sibling showed improvement compared to 1 (100%), 63 (66.3%), and 97 (68.8%) who did not show improvement in the first month, first 2 months, and first 3 months, respectively.

Loss of Loved Ones

There was no significant difference with regard to loss of loved ones among children with improved and non-improved enuresis [Table 5]. Among those who lost loved ones, 52 (34.9%), 20 (36.4%), and 2 (22.2%) showed

improvement compared to none, 32 (33.7%), and 50 (35.5%) among those who failed to show improvement in the first month, first 2 months, and first 3 months, respectively.

Family Conflict

There was no significant difference with regard to family conflict between children with improved and non-improved enuresis: 52 (34.9%), 17 (30.95), and 2 (22.2%) children experiencing family conflict showed improvement compared to none, 35 (36.8%), and 50 (35.5%) experiencing similar conflict but did not show improvement in the first month, first 2 months, and first 3 months, respectively.

Difficult School Entry

There was no significant difference regarding difficulties faced at the time of school and non-school entry among children with improved and non-improved enuresis: 16 (10.7%), 7 (12.7%), and 1 (11.7%) showed improvement compared to none, 0 (0%), and 9 (9.5%) and 15 (10.6%) who did not show improvement.

School Conflict

There were no significant differences regarding school conflicts between children with improved and non-improved enuresis: 17 (11.4%), 9 (16.4%), and 2 (22.2%) children experiencing school conflicts showed improvement compared to none, 8 (8.5%), and 15 (10.6%) children with school conflict who did not show improvement in the first month, first 2 months, and first 3 months, respectively.

Home Conflict

There was no significant difference regarding home conflicts among children with improved and non-improved enuresis: 41 (27.5%), 15 (27.3%), and 2 (22.2%) children experiencing home conflict showed improvement compared to none, 26 (27.4%), and 39 (27.7%) children with home conflicts who did not show improvement in the first month, first 2 months, and first 3 months, respectively.

Urinary Tract Infection Symptoms

Table 1 show that 45 (30.2%), 18 (32.7%), and 3 (1.9%) of children with improved enuresis had urgency compared to none, 27 (28.4%), and 42 (29.8%) of those with non-improved in the first month, first 2 months, and first 3 months. Also, it show that 44 (29.4%), 14 (25.5%), and 3 (33.3%) of those with improvement had wetting with cough compared to none, 30 (31.6%), and 41 (29.1%) of those with non-improved enuresis in the first month, first 2 months, and first 3 months. However, it show that the prevalence of symptoms such as frequency, hesitancy, dysuria, straining, dribbling, and divided stream was higher in children with improved enuresis compared with those with non-improved enuresis in the first month, first 2 months, and first 3 months.

Using Napes

There was no significant difference regarding using and non-using napes among children with improved and non-improved enuresis: 22 (95.7%), 6 (26.1%), and 1 (4.3%) children using napes showed improvement compared to 1 (4.3%), 17 (73.9%), and 22 (95.7%) who did not show improvement in the first month, first 2 months, and first 3 months, respectively.

Punishment

There was no significant difference with regard to punishment by parent among children with improved and non-improved enuresis: 89 (100%), 38 (42.7%), and 3 (3.4%) of children facing punishment showed improvement compared to none, 51 (57.3%), and 86 (96.6%) children who did not show improvement in the first month, first 2 months, and first 3 months, respectively.

Rewards

There was no significant difference between rewards and no rewards for dry nights among children with improved and non-improved enuresis: 55 (100%), 23 (41.8%), and 4 (7.3%) children who were offered rewards if their bed remained dry showed improvement compared to 32 (58.2%), and 51 (92.7%) of similar children who did not show improvement in the first month, first 2 months, and first 3 months, respectively.

Fluid Restriction

There was no significant difference regarding fluid restriction among children with improved and non-improved enuresis: 65 (98.5%), 25 (37.9%), and 5 (7.6%) children with fluid restriction showed improvement compared to 1 (100%), 41 (62.1%), and 61 (92.4%) of children with fluid restriction who failed to show improvement in the first month, first 2 months, and first 3 months, respectively.

Delayed Milestones

There was no significant difference regarding fluid restriction among children with improved and non-improved enuresis: 65 (98.5%), 25 (37.9%), and 5 (7.6%) children with fluid restriction showed improvement compared to 1 (100%), 41 (62.1%), and 61 (92.4%) of similar children who did not show improvement.

Enuresis in Parents

There was no significant difference regarding the presence of enuresis in parents among children with improved and non-improved enuresis: 15 (100%), 5 (33.3%), and 1 (6.7%) children of parents with enuresis showed improvement compared to 10 (66.7%) and 14 (93.3%) of similar children who did not show improvement.

Enuresis in Sibling

There was no significant difference regarding enuresis in sibling among children with improved and non-improved

enuresis: 27 (100%), 9 (33.3%), and 2 (7.4%) of children whose sibling had enuresis showed improvement compared to 18 (66.7%) and 25 (92.6%) of sibling who failed to show improvement respectively.

non-improved enuresis: 39 (100%), 17 (43.6%), and 4 (10.3%) children with previous treatment showed improvement compared to 22 (56.4%) and 35 (89.7%) of children with previous treatment who failed to show improvement.

Previous Treatment

There was no significant difference regarding enuresis with previous treatment among children with improved and

Discussion

The high response rate was mainly due the availability of the files and easy accessibility to the clinic.

Table 1: Urinary tract symptoms among improved and non-improved enuretics in the first 1 month, first 2 months and first 3 months

Factor	Improved, No (%)	Non-improved, No (%)	Total, No (%)	-p-Value
Urgency				
1st month	45 (30.2)	0 (0.0)	45 (30)	NS
1st 2 months	18 (32.7)	27 (28.4)	45 (30)	NS
1st 3 months	3 (33.3)	42 (29.8)	45 (30)	NS
Dripping with cough				
1st month	44 (29.5)	0 (0.0)	44 (29.5)	NS
1st 2 months	14 (25.5)	30 (31.6)	44 (29.5)	NS
1st 3 months	3 (33.3)	41 (29.1)	44 (29.5)	NS
Frequency				
1st month	41 (27.5)	1 (100)	42 (28)	NS
1st 2 months	15 (27.3)	27 (28.4)	42 (28)	NS
1st 3 months	2 (22.2)	40 (28.4)	42 (28)	NS
Hesitancy				
1st month	4 (2.7)	0 (0.0)	4 (2.7)	NS
1st 2 months	1 (1.8)	3 (3.2)	4 (2.7)	NS
1st 3 months	0 (0.0)	4 (2.8)	4 (2.7)	NS
Dysurea				
1st month	28 (18.7)	0 (0.0)	28 (18.7)	NS
1st 2 months	9 (16.4)	19 (20)	28 (18.7)	NS
1st 3 months	1 (11.1)	27 (19.1)	28 (18.7)	NS
Straining				
1st month	9 (6)	0 (0.0)	9 (6)	NS
1st 2 months	3 (5.5)	6 (6.3)	9 (6)	NS
1st 3 months	1 (11.1)	8 (5.7)	9 (6)	NS
Dribbling				
1st month	42 (28)	1 (100)	43 (28.7)	NS
1st 2 months	14 (25.5)	29 (30.5)	43 (28.7)	NS
1st 3 months	3 (33.3)	40 (28.4)	43 (28.7)	NS
Divided				
1st month	2 (1.3)	0 (0.0)	2 (1.3)	NS
1st 2 months	1 (1.8)	1 (1.1)	2 (1.3)	NS
1st 3 months	0 (0.0)	2 (1.4)	2 (1.3)	NS

NS: not significant

Degree of improvement (zero wetting per week)

Of 150 enuretic children, the degree of improvement was 99.3% in the first month, 36% in the first 2 months, and 9% in the first 3 months. In the current study, the degree of improvement was high in the first month and decreased subsequently in the first 3 months. This was possibly because the response rate was high at the beginning of the treatment when there was more social support, motivation, and challenge, which decrease gradually. The degree of improvement in Michigan study,^[12] which was conducted in the university hospital, was 43% with wetting frequency of ≤ 2 times per week per 6 months and the age group was < 9 years.

In a study conducted at a primary health care center in Lebanon, the rate of improvement was found to be 50% with wetting frequency of ≤ 2 times per week per 6 months, the age group was < 7 years.^[13]

In a study conducted in a general practice setting in Turkey, the rate of improvement was 40% and the age group was 7–11 years.^[14]

In a study conducted at a hospital in Canada, the rate of improvement was 70%, and the age group was > 7 years with wetting frequency of < 3 times per week per 6 months.^[11]

In a study conducted at a university hospital in the UK, the rate of improvement was 22% with wetting frequency of < 2 times per after 6 months, and the age group was 6–8 years.^[15] This variability was due to different sample size and different definitions of improvement. Many criteria for definition of the degree of improvement, method of treatment, and follow-up criteria were different. Further, it must be taken into account that religious, social, and cultural differences exist between the Western and our society.

Associated factors with zero wetting per week

Age of Toilet Training

The mean age of children with improved enuresis was higher than that of children with non-improved enuresis in the first month and first 3 months. However, it was lower in the first 2 months, taking recall bias by mothers in consideration. The reported age group of the toilet training in this community was around 2 years. This was probably the reason of not having significant difference between the two age groups. Some studies^[16,17] showed that early toilet training was associated with better improvement of enuresis; however the age of toilet training was not specified.

Age

The mean age of children with improved enuresis was higher than that of the children with non-improved enuresis in the first month and first 3 months. This was unusual and can be explained by factors such as the peer pressure and community pressure. Linda study conducted at a university hospital showed that the age group > 5 years to < 9 years is

associated with better outcome of bedwetting frequency ≤ 2 times per week per 6 months.^[12]

In a study, which was conducted in pediatric urology hospital by Longstaffe et al.,^[11] the age group was not defined and the rate of improvement with bedwetting frequency was < 2 times per week per 6 months. Alwan et al. study^[7] showed more improvement in < 7 years age group; however the rate of improvement with bedwetting frequency was < 2 times per week per 3 months. The study was conducted in a primary health-care center. In a study conducted by Gümüş et al.^[14] it is reported that the age group of < 9 years was associated with more positive outcome. The study was conducted in a general practice setting.

Wetting Frequency per Week

The mean initial wetting frequency per week among children with improved enuresis was higher than that in children with non-improved enuresis in the first 2 months. However, it was lower in the first month, first 2 months, and first 3 months. This reason could not be explained. In all reviewed studies, the investigators were not able to find a single variable.

Gender

More improvement was seen among male than female children in the first month, first 2 months and first 3 months. This was probably due to the anatomical differences as females are more prone to recurrent infection. A study by Gümüş et al. showed more improvement among female, where the age group was < 9 years and the rate of improvement related to bedwetting frequency was < 2 times per week per 8 week. In Marc study more improvement was found among females.^[14] In Longstaffe et al. study, the age group was > 7 years; however the gender was not defined.^[11]

Nationality

The improvement in enuresis was observed more among Saudi than non-Saudi in first month, first 2 months, and first 3 months. This was expected because more Saudis are attending the enuretic clinics than non-Saudis. This could also be due to different cultural background.

Spontaneous Waking for Toilet

Among children with no spontaneous waking for toilet, the number of children with improved enuresis was higher than that with non-improved enuresis in the first month, the first 2 months, and the first 3 months. More improvement was expected among children with family help and support for waking up for toilet.

Fear of Toilet

The number of children with improved enuresis was higher than that with non-improved enuresis in the first month among children without fears of toilet. However, it was

lower in the first 2 months and first 3 months. This was probably due to more family support and more challenge at the beginning.

Easy Access to Toilet

The improvement was more among children with easy access to toilet. This was expected, indicating the presence of good, arranged environmental and family support. In all reviewed literature, no study had the same criteria. Therefore, the investigator was not able to compare this study with other studies.

Hospitalization

The number of children with improved enuresis was more than that with non-improved in the first month, the first 2 months, and the first 3 months among children not admitted to a hospital. This result was expected. Hospitalization is a stressful event that might delay the improvement. In all reviewed studies, the investigator was not able to find authors addressing this variable.

Parent Separation

The number of children with improved enuresis was more than that with non-improved enuresis in the first month, the first 2 months, and the first 3 months among those with no parent separation. This is usual, probably due to low stressful events. In all the reviewed literature studies, none had the same criteria, so the investigator was not able to compare this study with others.

Birth of a Sibling

History of birth of a sibling was more among children with non-improved enuresis in the first month and the first 3 months. This was expected, indicating the possible relation of jealousy with the lack of improvement. However, the opposite was found in the first 2 months, which was unusual and cannot be explained. In all reviewed studies, the investigator was not able to find this variable.

Loss of Loved Ones

The number of improved-enuresis children with loss of love was more than that with non-improved enuresis in the first month. However, it was lower in the first 2 months and first 3 months. This is unusual; however, this was not statistically significant. In all reviewed studies, the investigator was not able to find this variable.

Family Conflict

Family conflict was an insignificant variable between children with improved and non-improved enuresis. This was unexpected and can be explained by homogeneity of both groups. In all reviewed literature studies, none had the same criteria, so the investigator was not able to compare this study with others.

School Entry: Conflicts at School and Home

There was an insignificant difference among children with improved and non-improved enuresis in the first month, first 2 months, and first 3 months regarding difficulties at school entry and conflicts at school and home. In all reviewed studies, the investigator did not find studies using these variables. Therefore, comparison was not feasible.

Dripping with Cough, Urgency, Frequency, Hesitancy, Dysuria, Straining

There was no significant difference between children with improved and non-improved enuresis in the first month, first 2 months, and the first 3 months regarding dripping with cough, urgency, frequency, hesitancy, dysuria, and straining. This finding might be explained by the homogeneity of the study group and by the possible similar distribution of these factors among both groups. The investigator did not find studies using similar variables. Therefore, a comparison was not feasible in this regard.

Using Napes, Punishment, Rewards, Fluid Restrictions

Parent's attitudes regarding the use of napes, punishment, rewards, and fluid restrictions were significant variable between children with improved and non-improved enuresis in the first month, first 2 months, and first 3 months. This might be explained by the similarity in the two groups. As the investigator did not find studies using similar variables, comparison was not feasible in this regard.

Delayed Milestones, Enuresis in Parents and Siblings, Previous Treatment

These variables were found to be insignificant among children with improved and non-improved enuresis in the first month, first 2 months, and first 3 months. Therefore, this indicates the similarity of those two groups regarding such variable. The investigator failed to find studies using similar variables. Therefore, comparison was not a feasible in this regard.

Urine Analysis

Urine analysis of children with improved and non-improved enuresis showed that there was no significant difference in the RBC, WBC, and epithelial cell count in the first month, first 2 months, and first 3 months. Furthermore, the urine culture showed insignificant variation of *Escherichia coli*, *Klebsiella*, and other bacteria between the two groups. These findings might be explained by the small number of subjects and by the possible homogeneity of the two groups under study.

Conclusion

The rate of improvement of zero wetting per week was high in the first month and then declined steadily in the first 2 months and 3 months.

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