

Effect of the Educational Program upon Parents' Knowledge of Nocturnal Enuretic Children

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Abstract: The findings of the study have proved that there is a highly significant positive relationship between parents' knowledge and their demographic variables of age, educational level, occupation and residential area. In general, knowledge of parents related to nocturnal enuresis was low. However, the parents applied preventive practices towards their children with nocturnal enuresis. A quasi-experimental study was conducted in Pediatric department hospitals in Hodeidah from the middle of June till the end of September 2010, in order to identify parents' knowledge of their children with nocturnal enuresis. A purposive sample of (50) parents who accompanied their children with nocturnal enuresis have been selected. The reliability of the instrument was determined through test-retest and the validity through a panel of experts. The data were analyzed through the application of descriptive statistical analysis that include (frequency, mean, mean of scores, standard deviation and percentage) and the application of inferential statistical analysis that include, (Pearson correlation coefficient, chi-square and analysis of variance for the differences between pre-test and post-test of the study group). The results of the study indicated that the educational program had a positive effect on the knowledge of parents. The objectives were to identify the effectiveness of an educational program on parents' whose children suffer from nocturnal enuresis. The researchers recommend preparing and implementing the educational program for parents of children with enuresis and for medical and nursing staff to give them knowledge about the condition.

Key words:

INTRODUCTION

Enuresis is the medical term for bed-wetting during sleep. The word enuresis is derived from a Greek word meaning to make water [1], also the word "enourein", meaning to void urine. The first record of enuresis in the literature is in the Papyrus Ebers dated 1550 B.C, where the recommended remedy for incontinence was one juniper berrys one leaf of Cyprus and beer [2]. A family history of nocturnal enuresis is found in most enuretic children. The incidence of primary nocturnal enuresis is 77% among children who have both a parents with a history of primary nocturnal enuresis. This rate decreased to 43% in children who have just one parent with a history of primary nocturnal enuresis and to 15% in children who have no parental history of primary nocturnal enuresis [3]. Parental and societal sensitive to daytime urinary incontinence appear to be much greater than that to bedwetting, which can be somewhat more successfully

hidden and tolerated [4]. Nocturnal enuresis can takes a toll on a child's self-esteem and is a frustrating problem to parents. The parents are typically responsible for the clean-up after an accident and are also typically charged with finding a cure for the problem. It can be stressful for the parents and other family members. Feelings of the parents may range from being worried to frustrated, sad to angry and even tired. Children may be able to sense these feelings in parents. Children may feel responsible for their parents' reactions and for upsetting the household. It is important to take the positive steps together as a team (parent and child) in getting through the problem of enuresis. Together, parents and children should work on ways to diminish feelings of failure and look for ways to encourage good feelings [5]. Parental attitudes toward a child's bed-wetting can make the difference in how a child feels about his bed-wetting problem and himself. Support and praise will help a child. Shame and punishment will not [6].

MATERIAL AND METHODS

A quasi-experimental design which was conducted on parents having children with nocturnal enuresis starting from mid of June till end of September, 2010. The study describes the scope of parents' knowledge of the problem with the application of a program, in a manner of pre-test and post-test approach involving their children with nocturnal enuresis. It was carried out at Pediatric department Hospitals in Hodeidah City. A purposive "non-probability" sample of (50) parents who accompanied their hospitalized children with nocturnal enuresis or attending hospital for treatment and management was selected. A questionnaire was constructed after a narrative study, which carried out at pediatric department Hospitals by asking many parents open-ended questions related to the nocturnal enuresis itself and the type of care presented to their children during and after attack. The questionnaire consists of two parts:

Part I: It consists of demographic data concerning the respondents' general characteristics of parent's age, their educational level and occupation, family history and residency, besides the characteristics of the affected child.

Part II: It consists of structured items concerning parents' knowledge toward children with nocturnal enuresis. This part includes (60) items concerning the history of the condition, definition, causative agents, signs and symptoms, management of the nocturnal enuresis and prevention. The items were measured according to the 3-points Likert scale as (know, uncertain and don't know) and rated as 3 for known, 2 for uncertain and 1 for don't know. The score was modified according to the investigator's point of view.

The educational program concentrated on (11) major topics and it was implemented through four class session, each session was designed and scheduled for approximately (60) minutes.

A pilot study was involved (12) parents who have children with nocturnal enuresis. They were randomly selected from pediatric department Hospitals in June 2010. The internal consistency of reliability was estimated through the widely used method coefficient alpha or cronbach's alpha (α). Internal consistency for knowledge (60) items is $\alpha = 0.87$.

RESULTS

Table (2) shows the comparison between the study and control groups that high percentage of the mother age (28%, 52%) in the study group (16-25) years and

Table 1: Education program

| Time and date | Topics |
|--|---|
| First day: 25/6/2010 | Introduction |
| First session 10:00AM 60 min. (1 hour) (lecture and discussion) | definition of nocturnal enuresis Physiology of nocturnal enuresis Incidence rates of nocturnal enuresis in different ages. Kinds of nocturnal enuresis |
| Break: 15 min. | |
| First day 25/6/2010 | |
| Second session 11:15AM 60 min. (1 hour) (Lecture and discussion) | Causes of nocturnal enuresis Organic causes Psychological causes Source of Causes (mother, father, child (himself) |
| Second day 26/ 6 /2010 | Diagnosis |
| Third session 10:00AM 60 min. (1 hour) (lecture and discussion) | General advices for parents Prevention treatment (How to use Bathroom, Psychology encouragement, daily chart, urine alarm) |
| Break: 15 min. | |
| Second day 26/6/2010 | |
| Fourth session 11:15AM 60 min. (1 hour) (Lecture and discussion) | Treatment by Drugs (Drugs that have effects on the C.N.S, anti diuretic hormones). |

Table 2: Distribution of the socio-demographic data in study and control groups of parents and their enuretic children

| Variables | | Study Group | | Control Group | |
|---------------------------------------|------------------------------|-------------|-------|---------------|-------|
| | | F | % | F | % |
| Mother's age | 16-25 years | 7 | 28.0 | 2 | 8.0 |
| | 26-35 years | 13 | 52.0 | 12 | 48.0 |
| | 36-45 years | 5 | 20.0 | 10 | 40.0 |
| | 46-55 years | - | - | 1 | 4.0 |
| Total | | 25 | 100.0 | 25 | 100.0 |
| Father's age | 16-25 years | 6 | 24.0 | 1 | 4.0 |
| | 26-35 years | 12 | 48.0 | 11 | 44.0 |
| | 36-45 years | 5 | 20.0 | 11 | 44.0 |
| | 46-55 years | 2 | 8.0 | 2 | 8.0 |
| Total | | 25 | 100.0 | 25 | 100.0 |
| Father's condition and marital status | Alive | 25 | 100.0 | 25 | 100.0 |
| | Separated | - | - | - | - |
| | Divorced | - | - | - | - |
| | Widowed | - | - | - | - |
| Total | | 25 | 100.0 | 25 | 100.0 |
| Mother's condition and marital status | Alive | 25 | 100.0 | 25 | 100.0 |
| | Separated | - | - | - | - |
| | Divorced | - | - | - | - |
| | Widowed | - | - | - | - |
| Total | | 25 | 100.0 | 25 | 100.0 |
| Mother's educational level | Primary school graduate | 5 | 20.0 | 5 | 20.0 |
| | Intermediate school graduate | 4 | 16.0 | 5 | 20.0 |
| | Secondary school | 9 | 36.0 | 9 | 36.0 |
| | Institute graduate | 4 | 16.0 | 4 | 16.0 |
| | University graduate | 3 | 12.0 | 2 | 8.0 |
| Total | | 25 | 100.0 | 25 | 100.0 |
| Father's educational level | Primary school graduate | - | - | 3 | 12.0 |
| | Intermediate school graduate | 4 | 16.0 | 1 | 4.0 |
| | Secondary school | 6 | 24.0 | 7 | 28.0 |
| | Institute graduate | 11 | 44.0 | 12 | 48.0 |
| | University graduate | 4 | 16.0 | 2 | 8.0 |
| Total | | 25 | 100.0 | 25 | 100.0 |
| Mother's occupation | Housewife | 7 | 28.0 | 11 | 44.0 |
| | Employed | 18 | 72.0 | 14 | 56.0 |
| Total | | 25 | 100.0 | 25 | 100.0 |
| Father's occupation | Self-employed | 4 | 16.0 | 8 | 32.0 |
| | Employed | 21 | 84.0 | 17 | 68.0 |
| Total | | 25 | 100.0 | 25 | 100.0 |
| Residency | Urban | 25 | 100.0 | 25 | 100.0 |
| | Rural | - | - | - | - |
| Total | | 25 | 100.0 | 25 | 100.0 |
| Socio-economic status | Good | 16 | 64.0 | 6 | 24.0 |
| | Fair | 8 | 32.0 | 19 | 76.0 |
| | Poor | 1 | 4.0 | - | - |
| Total | | 25 | 100.0 | 25 | 100.0 |
| Number of children in the family | One child | 1 | 4.0 | - | - |
| | Two children | 5 | 20.0 | 10 | 40.0 |
| | Three children | 10 | 40.0 | 2 | 8.0 |
| | Four children | 5 | 20.0 | 7 | 28.0 |
| | Five children and above | 4 | 16.0 | 6 | 24.0 |
| Total | | 25 | 100.0 | 25 | 100.0 |

Table 2: Distribution of the socio-demographic data in study and control groups of parents and their enuretic children

| Variables | | Study Group | | Control Group | |
|---|-------------------------------|-------------|-------|---------------|-------|
| | | F | % | F | % |
| Ordinal position of the nocturnal child in the family | First | 13 | 52.0 | 9 | 36.0 |
| | Second | 7 | 28.0 | 11 | 44.0 |
| | Third | 4 | 16.0 | 1 | 4.0 |
| | Fourth | - | - | - | - |
| | Fifth | - | - | 2 | 8.0 |
| | Sixth & above | 1 | 4.0 | 2 | 8.0 |
| Number of nocturnal enuresis children in the family | One child | 25 | 100.0 | 25 | 100.0 |
| | Two children | 18 | 72.0 | 20 | 80.0 |
| Total | | 25 | 100.0 | 25 | 100.0 |
| The child suffering from psychological problems | Yes | 2 | 8.0 | 3 | 12.0 |
| | No | 23 | 92.0 | 22 | 88.0 |
| Total | | 25 | 100.0 | 25 | 100.0 |
| The child suffering from somatic problems | Yes | 4 | 16.0 | 8 | 32.0 |
| | No | 21 | 84.0 | 17 | 68.0 |
| Total | | 25 | 100.0 | 25 | 100.0 |
| Somatic problems of the child | Urinary tract infection (UTI) | 1 | 10.0 | 4 | 50.0 |
| | Diabetes mellitus | 2 | 25.0 | 2 | 25.0 |
| | Sleep disorder | - | - | 1 | 12.5 |
| | Organic disease in the CNS | | | | |
| | nervous system (CNS) | - | - | 1 | 12.5 |
| | Spinal cord injury | 1 | 10.0 | - | - |
| | Chronic constipation | - | - | - | - |
| | Diuretic drugs | - | - | - | - |
| | Others | - | - | - | - |
| Total | | 4 | 45.0 | 8 | 100.0 |
| The child suffering from social problems | Yes | 8 | 32.0 | 5 | 20.0 |
| | No | 17 | 68.0 | 20 | 80.0 |
| Total | | 25 | 100.0 | 25 | 100.0 |
| Social problems of the child. | 1. Housing | 4 | 50.0 | 2 | 40.0 |
| | 2. Schooling | 1 | 12.5 | 1 | 20.0 |
| | 3. Families | 3 | 37.5 | 2 | 40.0 |
| Total | | 8 | 100.0 | 5 | 100.0 |
| Family history of nocturnal enuresis | Yes | 6 | | | |
| | No | 19 | | | |
| Total | | 25 | | | |
| Is the affected person in the family | Mother | 1 | | | |
| | Father | 3 | | | |
| | Both of them | 1 | 16.7 | 1 | 14.3 |
| | Uncle | 1 | 50.0 | 5 | 71.4 |
| | Aunt | - | 16.7 | - | - |
| | Others | - | 16.7 | 1 | 14.3 |
| Total | | 6 | - | - | - |
| Psychological history of family | Yes | 2 | 8.0 | 3 | 12.0 |
| | No | 23 | 92.0 | 22 | 88.0 |
| Total | | 25 | 100.0 | 25 | 100.0 |

F= frequency;%= percent

Table 3: Demographic characteristics of the child with nocturnal enuresis

| Demographic characteristics | | Study group | | Control group | |
|---|--------------------------|-------------|-------|---------------|-------|
| | | F | % | F | % |
| Child's gender | Male-boys | 20 | 80.0 | 19 | 76.0 |
| | Female-girls | 5 | 20.0 | 6 | 24.0 |
| Total | | 25 | 100.0 | 25 | 100.0 |
| Child's feeding methods | Breast feeding | 18 | 72.0 | 16 | 64.0 |
| | Artificial feeding | 7 | 28.0 | 7 | 28.0 |
| | Mixed feeding | - | - | 2 | 8.0 |
| Total | | 25 | 100.0 | 25 | 100.0 |
| Child's vaccination | Yes | 19 | 76.0 | 16 | 64.0 |
| | No | 2 | 8.0 | 6 | 24.0 |
| | Partial (incomplete) | 4 | 16.0 | 3 | 12.0 |
| Total | | 25 | 100.0 | 25 | 100.0 |
| Age of the child | 1-5 years | 12 | 48.0 | 10 | 40.0 |
| | 6-10 years | 8 | 32.0 | 11 | 44.0 |
| | 11 years and above | 5 | 20.0 | 4 | 16.0 |
| Total | | 25 | 100.0 | 25 | 100.0 |
| Child's age at onset of nocturnal enuresis | 1-5 years | 21 | 84.0 | 21 | 84.0 |
| | 6 years and above | 4 | 16.0 | 4 | 16.0 |
| Total | | 25 | 100.0 | 25 | 100.0 |
| What age your child went to the bathroom | 1.5 year | 3 | 12.0 | - | - |
| | 2 years | 3 | 12.0 | 5 | 20.0 |
| | 2.5 years | - | - | - | - |
| | 3 years | 2 | 8.0 | 4 | 16.0 |
| | 3.5 years | 10 | 40.0 | 7 | 28.0 |
| | 4 years | 7 | 28.0 | 9 | 36.0 |
| Total | | 25 | 100.0 | 25 | 100.0 |
| Kinds of enuresis is | Primary | 24 | 96.0 | 18 | 72.0 |
| | Secondary | 1 | 4.0 | 7 | 28.0 |
| Total | | 25 | 100.0 | 25 | 100.0 |
| Child's admission to the hospital | Yes | 5 | 20.0 | 7 | 28.0 |
| | No | 20 | 80.0 | 18 | 72.0 |
| Total | | 25 | 100.0 | 25 | 100.0 |
| Child's visit to the physician clinic | Yes | 7 | 28.0 | 9 | 36.0 |
| | No | 18 | 72.0 | 16 | 64.0 |
| Total | | 25 | 100.0 | 25 | 100.0 |
| Frequency of urination | Every night | 6 | 24.0 | 11 | 44.0 |
| | Once at week | 4 | 16.0 | 5 | 20.0 |
| | More than once at week | 10 | 40.0 | 5 | 20.0 |
| | Once at month | 4 | 16.0 | 2 | 8.0 |
| | Every two months or more | 1 | 4.0 | 2 | 8.0 |
| Total | | 25 | 100.0 | 25 | 100.0 |
| Interruption period from nocturnal enuresis | Yes | 3 | 12.0 | 3 | 12.0 |
| | No | 22 | 88.0 | 22 | 88.0 |
| Total | | 25 | 100.0 | 25 | 100.0 |
| Child's diurnal enuresis | Yes | 2 | 8.0 | 5 | 20.0 |
| | No | 23 | 92.0 | 20 | 80.0 |
| Total | | 25 | 100.0 | 25 | 100.0 |
| New born in the family | Yes | 21 | 84.0 | 16 | 64.0 |
| | No | 4 | 16.0 | 9 | 36.0 |
| Total | | 25 | 100.0 | 25 | 100.0 |
| Loss of loved person | Yes | 18 | 72.0 | 8 | 32.0 |
| | No | 7 | 28.0 | 17 | 68.0 |
| Total | | 25 | 100.0 | 25 | 100.0 |
| Punishment of the child | Yes | 6 | 24.0 | 9 | 36.0 |
| | No | 19 | 76.0 | 16 | 64.0 |
| Total | | 25 | 100.0 | 25 | 100.0 |
| Ridicule of the child | Yes | 7 | 28.0 | 11 | 44.0 |
| | No | 18 | 72.0 | 14 | 56.0 |
| Total | | 25 | 100.0 | 25 | 100.0 |

F= frequency;%= percent

(26-35) years respectively. While shows that high percentage of the mother age (40%, 48%) in the control age group years (26-35) and (36-45) years respectively. Also it shows that the high percentage of the father age (24%, 48%) in the study group (16-25) years and (26-35) years respectively.

While, it shows that high percentage of the father age (8%, 44%) In the control group (26-35, 36-45) years and (46-55) years. 20% and 36% of mothers in the study and control group graduate from primary and secondary school respectively, while 24% and 44% of fathers in the study group graduated from secondary school and institute respectively, also 28% and 48% of father in the control group graduate from secondary school and institute respectively.

Regarding occupation (72%) of mothers in the study group were employees while (56%) of mothers in the control group were employed. Also (84%) of fathers in the study group were employees while (68%) of fathers in the control group were employees, (100%) of parent's in the study group and control group living in urban area, (40%) of family have two and three children in the study and control group respectively, (52%) and (44%) have the first child and second child in the study group and control group affected in the family respectively, (72%) and (80%) of families enuretic have only one child of the study and control group sick in the family respectively, (25%) of children have Diabetes Mellitus in the study group and (50%) of children have Urinary Tract Infection (UTI) in the control group, (50%) and (71.4%) of fathers of children have past history of nocturnal enuresis in the family together in the study group and control group respectively.

Table (3) concerned with children with nocturnal enuresis shows that (80%) and (76%) of children were male in the study group and control group respectively, (48%) their ages in the study group were 1-5 years and (44%) their ages in the control group were 6-10 years, onset of nocturnal enuresis occurs in (84%) at age of 1-5 years, (76%) and (64%) of children completed all vaccines in the study and control group respectively, (40%) their age in the study group 3.5 years and (36%) their age in the control group four years go to the bathroom, (96%) and (72%) have a primary nocturnal enuresis in both study group and control group respectively, (80%) and (72%) of children have not been admitted to the hospital in both study group and control group respectively. Frequency of urination more than once at week in the (40%) of children at the study group while (44%) every night at the control group, (88%) have no interruption period from

nocturnal enuresis, (92%) and (80%) in both study group and control group respectively have no diurnal enuresis, (84%) and (64%) in both study group and control group respectively have new born in the family, (72%) of children in the study group suffer from loss of loved person while (68%) of children in the control group don't suffer from loss of loved person in the family, (76%) and (64%) of children in the study group and control group respectively do not punish their children, (72%) and (56%) in the study group and control group respectively do not ridicule their children in the family.

DISCUSSION

Analysis of such characteristics in (Table 2) of the study group and control group shows (48-44%) of fathers for both groups were within age group(26-35years), while the lower percentage (8%) were aged (46-55) years. Almost, more than half of the study group (52%) of mothers is in age group (26-35) years, while the lower percentage (4%) is aged (46-55) years. And for example regarding the level of education (16% & 4%) is intermediate school graduate for the fathers in both control and study groups and 36% of mothers for both groups are graduated from the secondary school and only (12% & 8%) graduated of college respectively.

The full percentage (100%) of parents who have children with nocturnal enuresis living in the urban areas, this result is similar to that reported from Korea and Taiwan but appears to be lower than that reported from developed countries [8-9].

Table (3) shows that high percentage (80%) of nocturnal enuresis among children were male while (20%) were female in more than five years of age among study group, this table show association between gender and age of children and these results agree with the percentage of the American Psychiatric Association; Enuresis is prevalent in 7% to 20% of males and 3% of females ranging from ages 5 to 7 years of age [10]. Five to seven million children over the age of six suffer from what is commonly known as bedwetting. Concerning the frequency of child urination (44%) every night, while (4%) every two months or more [8].

In this current study 24-36% of both groups were no vaccination or partial. The important things for parents to know that children should take immunization five times in the first year of their life, a child who is not immunized is more likely to become disable and at increased risk of morbidity and mortality (UNICEF & WHO, 1993) [11].

Table 4: Parent's knowledge within 3-levels scale of pre-test and post-test and relative to the effectiveness of an educational program upon parents of children with nocturnal enuresis. (60 items)

| List | Items | Pre-test | | | | | | Post-test | | | | | | | | | |
|------|---|----------|----|-----------|----|------------|----|-----------|-----|-----------|-----|------------|----|---|----|------|-----|
| | | I Know | | Uncertain | | Don't know | | I Know | | Uncertain | | Don't know | | | | | |
| | | F | % | F | % | F | % | MS | CS | F | % | F | % | F | % | MS | CS |
| 1 | Nocturnal Enuresis (NE) means (bed wetting) at night for at least three months and twice weekly with out organic diseases. | 17 | 68 | 4 | 16 | 4 | 16 | 2.52 | H.S | 22 | 88 | 2 | 8 | 1 | 4 | 2.84 | H.S |
| 2 | (NE) means frequency of child urination at night | 21 | 84 | 1 | 4 | 3 | 12 | 2.72 | H.S | 25 | 100 | 0 | 0 | 0 | 0 | 3 | H.S |
| 3 | The boys have more incidence than girls of (NE). | 7 | 28 | 12 | 48 | 6 | 24 | 2.04 | S | 21 | 82 | 2 | 8 | 2 | 8 | 2.76 | H.S |
| 4 | The twin child exposes to the (NE), if another child is affected. | 3 | 12 | 14 | 56 | 8 | 32 | 1.8 | S | 12 | 48 | 12 | 48 | 1 | 4 | 2.44 | S |
| 5 | Heredity is considered as the main cause of (NE). | 10 | 40 | 8 | 32 | 7 | 28 | 2.12 | S | 10 | 40 | 14 | 56 | 1 | 4 | 2.36 | S |
| 6 | The cause of (NE) could be due to consanguinity is the relative married. | 2 | 8 | 9 | 36 | 14 | 56 | 1.52 | S | 10 | 40 | 14 | 56 | 1 | 4 | 2.36 | S |
| 7 | The psychological factors are important causes of (NE). | 13 | 52 | 7 | 28 | 5 | 20 | 2.32 | S | 15 | 60 | 9 | 36 | 1 | 4 | 2.56 | H.S |
| 8 | Diabetic mellitus plays role in (NE). | 9 | 36 | 8 | 32 | 8 | 32 | 2.04 | S | 12 | 48 | 13 | 52 | 0 | 0 | 2.48 | S |
| 9 | The large size of family (number of children) plays a role in (NE). | 1 | 4 | 14 | 56 | 10 | 40 | 1.64 | S | 11 | 44 | 10 | 40 | 4 | 16 | 2.28 | S |
| 10 | The congenital anomalies of the spinal cord, kidney, head and epilepsy may consider one of the causes of (NE). | 10 | 40 | 7 | 28 | 8 | 32 | 2.08 | S | 12 | 48 | 11 | 44 | 2 | 8 | 2.4 | S |
| 11 | Neglect of the child with out treatment increase the intensity of (NE). | 6 | 24 | 11 | 44 | 8 | 32 | 1.92 | S | 14 | 56 | 10 | 40 | 1 | 4 | 2.52 | H.S |
| 12 | (NE) ceases at five year of age or above. | 4 | 16 | 13 | 52 | 8 | 32 | 1.84 | S | 18 | 72 | 6 | 24 | 1 | 4 | 2.68 | H.S |
| 13 | (NE) is two kinds primary & secondary. Primary means since birth until now. While secondary means stopped at least 6 months & return. | 12 | 48 | 7 | 28 | 6 | 24 | 2.24 | S | 16 | 64 | 5 | 20 | 4 | 16 | 2.48 | S |
| 14 | (NE) usually affected by emotional problems. | 8 | 32 | 10 | 40 | 7 | 28 | 2.04 | S | 19 | 76 | 6 | 24 | 0 | 0 | 2.76 | H.S |
| 15 | (NE) affects the child from 5years or above. | 7 | 28 | 13 | 52 | 5 | 20 | 2.08 | S | 14 | 56 | 8 | 32 | 3 | 12 | 2.44 | S |
| 16 | It is necessary to visit the pediatric clinic to treat the (NE) child. | 10 | 40 | 7 | 28 | 8 | 32 | 2.08 | S | 16 | 64 | 8 | 32 | 1 | 4 | 2.6 | S |
| 17 | (NE) might be due to that nerve impulses do not reach brain in a correct way. | 4 | 16 | 14 | 56 | 7 | 28 | 1.88 | S | 11 | 44 | 13 | 52 | 1 | 4 | 2.4 | S |
| 18 | The parents feel that (NE) affect child by concentrating for e.g. he/she can't accomplish the study in the school & can't focusing. | 8 | 32 | 7 | 28 | 10 | 40 | 1.92 | S | 13 | 52 | 9 | 36 | 3 | 12 | 2.4 | S |
| 19 | Parents realize feeling that one of the main causes of (NE) is the child feelings of guilt. | 5 | 20 | 9 | 36 | 11 | 44 | 1.76 | S | 9 | 36 | 13 | 52 | 3 | 12 | 2.24 | S |
| 20 | Parents know that the child may be isolated from his colleagues (can't initiate social relationship) because the effect of (NE) on his/her psych. | 2 | 8 | 12 | 48 | 11 | 44 | 1.64 | S | 10 | 40 | 11 | 44 | 4 | 16 | 2.24 | S |
| 21 | Parents are feeling that the child embarrasses from (NE) that lead him not to stay outside the home. | 7 | 28 | 10 | 40 | 8 | 32 | 1.96 | S | 13 | 52 | 7 | 28 | 5 | 20 | 2.32 | S |
| 22 | Parents feel that the child feels shame because of (NE). | 7 | 28 | 10 | 40 | 8 | 32 | 1.96 | S | 14 | 56 | 9 | 36 | 2 | 8 | 2.48 | S |
| 23 | Difficult awaking the child from the sleep at night is considered one of the causes of (NE). | 10 | 40 | 10 | 40 | 5 | 20 | 2.2 | S | 14 | 56 | 11 | 44 | 0 | 0 | 2.56 | H.S |
| 24 | Parents realize that one of the causes of Nocturnal Enuresis (NE) is that the child (he/she) feels self- esteem. | 3 | 12 | 17 | 68 | 5 | 20 | 1.92 | S | 15 | 60 | 9 | 36 | 1 | 4 | 2.56 | H.S |
| 25 | (NE) may be considered as one of the disorders of mental and psychological development of the child. | 10 | 40 | 11 | 44 | 4 | 16 | 2.24 | S | 17 | 68 | 6 | 24 | 2 | 8 | 2.6 | S |
| 26 | Difficulty in urination is one of the diseases that affect the child and has relation to (NE). | 11 | 44 | 9 | 36 | 5 | 20 | 2.24 | S | 16 | 64 | 8 | 32 | 1 | 4 | 2.6 | S |
| 27 | Interruption of the urine stream is considered one of the causes of (NE). | 8 | 32 | 11 | 44 | 6 | 24 | 2.08 | S | 18 | 72 | 7 | 28 | 0 | 0 | 2.72 | H.S |
| 28 | Previous urinary tract infection (UTI) may have a relation to (NE). | 5 | 20 | 12 | 48 | 8 | 32 | 1.88 | S | 14 | 56 | 9 | 36 | 2 | 8 | 2.48 | S |
| 29 | Previous haemeturia may lead to (NE). | 6 | 24 | 12 | 48 | 7 | 28 | 1.96 | S | 10 | 40 | 12 | 48 | 3 | 12 | 2.28 | S |
| 30 | Burning sensation during urination may be clear related to (NE). | 4 | 16 | 13 | 52 | 8 | 32 | 1.84 | S | 8 | 32 | 16 | 64 | 1 | 4 | 2.28 | S |
| 31 | Sudden urination (with out clear external cause) of the child may be one of the diseases that related to NE. | 8 | 32 | 7 | 28 | 10 | 40 | 1.92 | S | 5 | 20 | 13 | 52 | 7 | 28 | 1.92 | S |
| 32 | Frequency of urination is one of the diseases that affect the child and related to (NE). | 5 | 20 | 11 | 44 | 9 | 36 | 1.84 | S | 14 | 56 | 8 | 32 | 3 | 12 | 2.44 | S |
| 33 | Chronic diarrhea may be one of the causes that related to Nocturnal Enuresis (NE). | 4 | 16 | 11 | 44 | 10 | 40 | 1.76 | S | 9 | 36 | 8 | 32 | 8 | 32 | 2.04 | S |
| 34 | Chronic constipation may be one of the causes that related to (NE). | 3 | 12 | 8 | 32 | 14 | 56 | 1.56 | S | 9 | 36 | 11 | 44 | 5 | 20 | 2.16 | S |
| 35 | Hard stool (feces) may be related to (NE). | 4 | 16 | 8 | 32 | 13 | 52 | 1.64 | S | 10 | 40 | 8 | 32 | 7 | 28 | 2.12 | S |
| 36 | Drinking a lot of liquids by the child before sleeping increase the intensity of (NE). | 17 | 68 | 5 | 20 | 3 | 12 | 2.56 | S | 24 | 96 | 0 | 0 | 1 | 4 | 2.92 | H.S |
| 37 | The child urinates during the day when he/she is sleeping deeply. | 12 | 48 | 9 | 36 | 4 | 12 | 2.32 | S | 15 | 60 | 9 | 36 | 1 | 4 | 2.56 | H.S |
| 38 | The child urinates twice weekly during sleep. | 5 | 20 | 15 | 60 | 5 | 20 | 2 | S | 14 | 56 | 10 | 40 | 1 | 4 | 2.52 | H.S |
| 39 | The child urinates more than two times weekly during sleep. | 7 | 28 | 14 | 56 | 4 | 16 | 2.12 | S | 12 | 48 | 12 | 48 | 1 | 4 | 2.44 | S |
| 40 | The child urinates every night or weekly during sleep. | 8 | 32 | 13 | 52 | 4 | 16 | 2.16 | S | 13 | 52 | 12 | 48 | 0 | 0 | 2.52 | H.S |
| 41 | A complication may be happened to the child if the treatment is neglected. | 11 | 44 | 5 | 20 | 9 | 36 | 2.08 | S | 14 | 56 | 10 | 40 | 1 | 4 | 2.52 | H.S |
| 42 | There are two kinds of (NE) treatment with drugs and with out drugs. | 10 | 40 | 7 | 28 | 8 | 32 | 2.08 | S | 15 | 60 | 7 | 28 | 3 | 12 | 2.48 | S |
| 43 | Waking the child 3-4 hours after sleep may be useful in reducing the intensity of (NE). | 13 | 52 | 9 | 36 | 3 | 12 | 2.4 | S | 13 | 52 | 10 | 40 | 2 | 8 | 2.44 | S |
| 44 | Children nutrition might decrease the intensity of (NE). | 6 | 24 | 13 | 52 | 6 | 24 | 2 | S | 13 | 52 | 11 | 44 | 1 | 4 | 2.48 | S |
| 45 | Psychological treatment of the child decreases the intensity of (NE). | 12 | 48 | 9 | 36 | 4 | 16 | 2.32 | S | 17 | 68 | 7 | 28 | 1 | 4 | 2.64 | H.S |
| 46 | Behavior treatment of the child can be effective in decreasing (NE). | 15 | 60 | 4 | 16 | 6 | 24 | 2.36 | S | 17 | 68 | 7 | 28 | 1 | 4 | 2.64 | H.S |

Table 4: Parent's knowledge within 3-levels scale of pre-test and post-test and relative to the effectiveness of an educational program upon parents of children with nocturnal enuresis. (60 items)

| List | Items | Pre-test | | | | | | Post-test | | | | | | | | | |
|------|--|----------|----|-----------|----|------------|----|-----------|-----|-----------|----|------------|----|---|----|------|-----|
| | | I Know | | Uncertain | | Don't know | | I Know | | Uncertain | | Don't know | | | | | |
| | | F | % | F | % | F | % | F | % | F | % | F | % | | | | |
| | | MS | CS | MS | CS | MS | CS | MS | CS | MS | CS | MS | CS | | | | |
| 47 | There is no curative method for (NE), but using the drugs might reduce period until the child awakes from sleep and urinates and this can be considered as a protective way measure. | 11 | 44 | 7 | 28 | 7 | 28 | 2.16 | S | 14 | 56 | 8 | 32 | 3 | 12 | 2.44 | S |
| 48 | It's necessary to perform physical examination and laboratory investigation for any child suffering from (NE). | 11 | 44 | 9 | 36 | 5 | 20 | 2.24 | S | 23 | 92 | 1 | 4 | 1 | 4 | 2.88 | H.S |
| 49 | Encouragement the child to change his lines by himself is useful procedure in treatment of (NE). | 9 | 36 | 12 | 48 | 4 | 16 | 2.2 | S | 21 | 84 | 4 | 16 | 0 | 0 | 2.84 | H.S |
| 50 | Putting a urination alarm over the urinary bladder might awake the child from sleep is effective in treatment of (NE). | 3 | 12 | 16 | 64 | 6 | 24 | 1.88 | S | 17 | 68 | 7 | 28 | 1 | 4 | 2.64 | H.S |
| 51 | Complete all the child vaccines can decrease the intensity of (NE). | 6 | 24 | 13 | 52 | 6 | 24 | 2 | S | 10 | 40 | 14 | 56 | 1 | 4 | 2.36 | S |
| 52 | Medical consultation may be useful in treatment of (NE). | 7 | 28 | 11 | 44 | 7 | 28 | 2 | S | 10 | 40 | 14 | 56 | 1 | 4 | 2.36 | S |
| 53 | Using the drugs such us Tofranil before sleep according to physician instruction decreases the intensity of (NE). | 5 | 20 | 9 | 36 | 11 | 44 | 1.76 | S | 10 | 40 | 13 | 52 | 2 | 8 | 2.32 | S |
| 54 | Periodic visits to the physician by parents are useful in decrease intensity of (NE). | 5 | 20 | 10 | 40 | 10 | 40 | 1.8 | N.S | 10 | 40 | 13 | 52 | 2 | 8 | 2.32 | S |
| 55 | Circumcision of the child after delivery might be useful in reducing the intensity of (NE). | 3 | 12 | 14 | 56 | 8 | 32 | 1.8 | N.S | 13 | 52 | 11 | 44 | 1 | 4 | 2.48 | S |
| 56 | Putting urine container at the child room encourages him to wake from sleep and he/she urinates. | 3 | 12 | 12 | 48 | 10 | 40 | 1.72 | S | 15 | 60 | 8 | 32 | 2 | 8 | 2.52 | H.S |
| 57 | Punishments of the child (physically or morally) by his /her parents after bed- wetting increase the complication of (NE). | 12 | 48 | 8 | 32 | 5 | 20 | 2.28 | S | 21 | 84 | 3 | 12 | 1 | 4 | 2.8 | S |
| 58 | Talking to child with bad words by his parents when he/she wetting bed may have negative effect on (NE). | 12 | 48 | 10 | 40 | 3 | 12 | 2.36 | S | 32 | 92 | 2 | 8 | 0 | 0 | 2.92 | H.S |
| 59 | Divorce or death one of the parents might increase the (NE) problem of the child. | 2 | 8 | 13 | 52 | 10 | 40 | 1.68 | S | 22 | 88 | 2 | 8 | 1 | 4 | 2.84 | H.S |
| 60 | Newly born new child in the family can increase the intensity of (NE). | 2 | 8 | 14 | 56 | 9 | 36 | 1.72 | S | 21 | 84 | 2 | 8 | 2 | 8 | 2.76 | H.S |

CS= Comparative Significance; F= Frequency; HS= Highly significant; MS= Mean of scores; NS= Non significant; S= Significant

The parents who have poor knowledge, their children have poor care and inadequate first aid measures toward nocturnal enuresis and the opposite is right [7]. So in table (4,item 2) for example the mean of parents knowledge related to nocturnal enuresis includes frequency of the child urinate at night was (3) for post-test and (2.84) for pre-test was highly significant after the application of the program and the bedwetting, also called enuresis, is the unintentional discharge of urine during sleep [9].

Also, the mean of parents' knowledge related to the boys more incidence than girls at nocturnal enuresis (Table 4, item 3) was (2.76) for post-test and (2.04) for pre-test and the mean of scores were low(not adequate knowledge) before the program and improved after that. It has been reported that the male to female ratio is equal in five years old but enuresis is more common in boys by the age of 10, with a male to female ratio of 1.5:1 at 10 years [12].

Concerning the parents' knowledge, the mean of the score related to the twin child exposure to the nocturnal enuresis if another child effected (Table 4, item 4) (2.44) and (1.8) for post and pre-test results have been shown that the identical twins experience enuresis more than non identical twins. The mean of score related to heredity

consider the main cause of nocturnal enuresis was low in pre-test (Table 4, Item 5) and the mean of parents' knowledge (2.36) for post-test results and (2.12) to pre-test results, the heredity factor is important in the causation of nocturnal enuresis [13]. This means that parents' knowledge has been changed positively after the application of the educational program. And also for example the mean of score related to putting urine container in the child room encourage him to wake from sleep was low and the mean of parent's knowledge (Table 4, Item 56) were (2.52) and (1.72) for post-test and pre-test results respectively and the child can stay dry during the night, when putting a rubber or plastic cover between the sheet and put urine container in the child room. This is consistent what has been mentioned as follows: this protects the bed from getting wet and smelling like urine [2]. All these mean that improving the parents' knowledge after the application of the program.

The mean of scores related to punishment of the child by his parent's after urination at night increase the complication of nocturnal enuresis in item (57) in (Table 4) the mean of parent's knowledge was (2.8) for post-test and (2.28) for pre-test results and also the knowledge of parents in the pre-test concerning saying and blaming to

the child bad words language by his parents when bedwetting at night the mean of score was (2.92) and (2.36) for the post-test and pre-test results (Table 4, item 58). These results are supported by Department of Pediatrics, King Hussein Medical Center found that 16% of parents viewed bedwetting as a significant problem and that one third dealt with it by punishment. The Jordanian families appear to show great concern about the problem. Families of 50% of the enuretics had sought medical help and only 14% reverted to punishment. Parental concern was reported as minimal in 22% [14-15].

Also, the mean of scores related to divorce or death of one of parents increases the nocturnal enuresis problems (table 4-59) the mean of parent's knowledge score was (2.84) for post-test and (1.68) for pre-test results which playing a significant role in improving the knowledge of the parents as also found in other studies [13].

The outcomes of this study indicated that the change occurs after the intervention (educational program in general) and there was a large difference between pre-test and post-test outcomes, these outcomes point to application of the educational program that can be improve the parents' knowledge through application educational program frequently. These outcomes are in agree with the study from university of Auckland, New Zealand stated that the children had experienced low self-esteem as a result of nocturnal enuresis, but success on the program dramatically improved their self-esteem and ability to socialize with other children [7].

The findings in this study like the findings of the study which stated that the structured educational program significantly reduced relapse rates of nocturnal enuresis and offers an alternative and rapid means of successfully withdrawing medication, it is argued that the influential variable concerns the ability of the child to shift attribution for success, from an external source (that is medication) to an internal focus that is changes in themselves [17].

The highly significant differences in parent's knowledge in pre-test and post-tests results reveal that the educational program is easy and simple to all participants and the parent's knowledge can be developed and improved through applying this program and gives parents an opportunity to continue and promote their knowledge.

This result agrees with the opinion of another study which mentioned that achieving optimum and excellent outcomes in his study at peritoneal dialysis unit with structured educational program requires an active continuous quality improvement team [18].

The findings in table (4) demonstrate that there are highly significant differences between the pre-test and post-test results knowledge relative to complication reduction in nocturnal enuresis. These significant differences between the pre-test and post-test results from the researchers' application of the educational program, can give educational opportunities to the nephrology nurses with informative bases and can enable them to assess, plan, implement and evaluate individualized care as mentioned in other experiences [16].

The intervention (educational program) consists of four teaching sessions each involves short lectures and intervention skills procedures. It was mentioned that findings in their study are designed to implement and evaluate the effectiveness of an educational program in newborn care and uses the educational program as an intervention by using the best evidence in teaching methods and content, In post-test the study explains the significant improvement in all groups (parents) in their satisfaction and knowledge [18-19].

Also, this result is in agreement with the study which stated that the comprehensive behavioral and educational nocturnal enuresis management program examined is effective in controlling nocturnal enuresis and improving patient self-esteem [20].

There was a significant change after the educational program regarding parent's knowledge in this study and it was very positive and clear, at outcome of the study group, as presented with the educational program and the post-test results. This result is found that further significant difference in the post-test values after a period between the study and control groups. Also the study emphasized the value and the role of the nurses as the facilitator of this program and has contributed to the knowledge based on the management of nocturnal enuresis in a community-based nurse-management program recommendation at the educational program level.

Recommendations: According to the findings of the present study, the investigator recommended the following

- A specific education program can be designed and presented to parent's who have minimum level of knowledge in order to improve their level of knowledge.
- The educational program of the present study can be used as a means for knowledge improvement for parents who have nocturnal enuresis children.

REFERENCES

1. Robert, W. and Collins, G. Bedwetting, 1997. An Overview. *Journal of Abnormal Psychology*, 82(2): 299-308.
2. Glickich, L.B., 1991. A Historical Account of Enuresis. *Pediatrics*, (8): 859-876.
3. Zaleski, A., J. Gerrard and M. Shokeir, 1973. "Nocturnal Enuresis": The Important of Small Bladder Capacity in J. Kolvin, R.C. Mackeith and S.R. Meadow (Eds). *Bladder-Control and Enuresis*, Philadelphia, Lippincott.
4. UNICEF and World Health Organization (WHO), 1993. *Facts for Life*, Revised Edition, Benson, pp: 17-25.
5. Warzak, W., 1993. Psychosocial Implications of Nocturnal Enuresis. *Clinical Pediatrics*, (199): 190-196.
6. Barbara P. Homier, 2005. Bedwetting. <http://www.bedwetting.com>.
7. McKillop, A., B. Mackay and N. Scobie, 2003. A Programme for Children with Nocturnal Enuresis, *Nurse Stand*, 17(43): 33-8.
8. Yem, S., 2007. *Pediatrics for Parents*, from: <http://www.too Old to Wet the Bed? Caring for Bedwetting Pediatrics for Parents- find articles>, pp: 18-36.
9. Deanna, M. and S. Generieve, 2007. *Encyclopedia of Children's Health: Infancy through Adolescence*, <http://www.bedwetting.com>, definition, description, demographics, causes and symptoms.
10. American Psychiatric association, 1994. *Diagnostic and Statistical Manual of Mental Disorders (4th Ed.) (DSM-IV)*, Washington DC.
11. Unicef and World Health Organization (WHO), 1993. *Facts for Life*, Revised Edition, Benson., pp: 17-25.
12. MacDonald, J., 2007. Epidemiology of Enuretic Children; *American Journal of Psychiatry*, 20(4): 1-3.
13. Robson, W. Enuresis, 2001. *A Development Pediatrics.*, (48): 409-414.
14. Haque, M., N. Ellerstein, J. Gundy, S. Shelov, J. Weiss and M. Mcintire, 1981. Parental Perceptions of Enuresis: A Collaborative Study. *American Journal of Diseases of Childhood*, (135): 809-811.
15. Gimpel, G. and W. Warzak, 1998. Clinical Perspectives in Primary Nocturnal Enuresis, *Clinical Pediatric*. 37(1): 23-29.
16. Kanatheswari, Y., 2003. Epidemiology of Childhood with Nocturnal Enuresis in Malaysia, *Journal of Pediatric-Child-Health*, 39(2): 118-123.
17. Butler, R., P. Holland and J. Robinson, 2001. Examination of the Structured Withdrawal Program to Prevent Relapse of Nocturnal Enuresis, *Journal of Urology*, 166(6): 2463-2466.
18. Al-Ftlawy, D., 2006. Effectiveness of an Educational Program upon Nurses' Knowledge about Complications in Peritoneal Dialysis Units. Unpublished Doctoral Dissertation, University of Baghdad, pp: 129-133.
19. Wendy, C. and H. Jeffery 2006.: Implementation and Evaluation of A Nocturnal Education Program in Rural Nepal, *Journal of Trop. Pediatric*, pp: 7.
20. Thomas, F. Egan., 2000. Efficacy and Self-Esteem Impact from A Comprehensive Nocturnal Enuresis Behavioral and Educational Management Program. <http://www. efficiency and self-esteem study>