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Caregivers' Management For Their Children With Nocturnal Enuresis

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Abstract
Background: *Nocturnal Enuresis (NE) is considered as a source of embarrassment and upsetting for children , it disturbs their self-esteem which consequently refrain them from certain age-appropriate activities. Caregivers may become frustrated with their child's bed- wetting because it is a drain of time, energy and money. Nocturnal enuresis is defined as involuntary or unintentional repeated voiding of urine in bed at night at least twice a week for at least three consecutive months for five years old children or more .**Objective:** The aim of this study was to determine the family care for their children with nocturnal enuresis **Setting:** This study was conducted in outpatient departments at of Sidi- Salem Hospital. **Subjects:** Convenience sampling of 150 caregivers of children with nocturnal enuresis comprised the study subjects and who fulfill the following criteria ,a - children's age is five years and more. b- Free from any associated diseases. **Tools:** one tool was used to collect the needed data that consist of two parts . **part I** namely; Family and Children's Characteristics and Clinical data, **part II** namely; family care for their children with nocturnal enuresis Structured Interview Schedule **Results:** It was illustrated that highest percent of caregivers (71%) attain unsatisfactory score for their performance in provided care for their children with nocturnal enuresis. on the other hand, the minority of them (29%) gain satisfactory score.. **Conclusion**: Based on the findings of this study, it was concluded that the management that have been done by the majority of caregivers for their children with nocturnal enuresis was unsatisfactory, where high percent of them had unsatisfactory score (71%) and 29% of them had satisfactory score.*

Key Words: *Family Care ; Nocturnal Enuresis; Children with Nocturnal Enuresis.*

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I. Introduction

Nocturnal Enuresis (NE) is a socially disruptive and stressful condition which affects many children .It is considered as a major source of anxiety ,shame and embarrassment to the family and their children .Moreover, NE causes profound loss of self- esteem, self-perception and poor inter-personal relationship(1) .Nocturnal enuresis refers to an involuntary voiding of urine during sleep in the absence of congenital and acquired defects of the central nervous system or urinary tract by a child who chronologically and developmentally older than five years. This pattern of urination must occur at least twice a week for three consecutive months(2)).

Worldwide, NE has been estimated to occur in 8-20% of children (2013) (3) .In United States, it was reported to occur in almost six million children annually (2015) (4)While, in Egypt, the prevalence of NE has reached approximately to 15.7% of children population, primary nocturnal enuresis constitutes 67.1% whereas; secondary nocturnal enuresis encompasses 32.9% (2014) (5) .Mainly, boys suffer from NE more often than girls. Black children have greater incidence of NE than white children. (6)

According to the National Institute for Health and Clinical Excellence (NICE) clinical guideline (2010) ,(7) Nocturnal Enuresis is can be classified into two categories which are called primary and secondary enuresis. Primary Nocturnal Enuresis (PNE) is the most common form of bedwetting. It is defined as persistent bedwetting in the absence of any urological, medical or neurological anomaly among children who are above the age of 5 years and never had bladder control . It is considered as a disorder when a child is old enough to stay dry(8)

Secondary nocturnal enuresis is diagnosed when bedwetting occurs after the children achieved bladder control for six months. It can be caused by emotional stress or a medical condition such as a bladder infection, drinking late in the evening , not passing urine before going to sleep resulting in excessive urine volume.

Furthermore, it may be due to the decrease of antidiuretic hormone during the night which controls the production of urine[9] .

Management of nocturnal enuresis involve several approaches including physical, psychological care, behavior modification as well as both pharmacological and non- pharmacological therapeutic treatment Physical care includes fluid restriction, wakening, lifting (the caregivers pick up the child while still asleep from the bed to allow him to urinate in an appropriate place) and advising the caregivers on diet and toileting patterns for their children suffering from NE. [10]. Psychological care includes maintenance of privacy to the child during voiding , clear explanation about the child's condition with considering the age and level of understanding as well as avoidance of child's punishment for bedwetting . Sharing experience with other family having children with the same diagnosis will give a psychological support for caregivers and their children. [11] Simple behavioral interventions assume that the ability of the child to remain dry at night is a learned response ,it is achieved by using psychological conditioning techniques. Behavior modification includes caregiver motivation for their children's commitment in voiding, rewarding the child dry nights and recording his progress on charts .Star charts and other reward systems can be used as positive reinforcement to encourage a desired behavior .Therapeutic measures for treatment of nocturnal enuresis include both non-pharmacological and pharmacological measures. Regarding non-pharmacological measures, it includes multiple approaches such as muscle-strengthening exercise , bladder retention training, enuresis alarms, acupuncture, hypnosis and simple natural home remedies. Muscle-strengthening exercise. Pharmacological treatment is another measure of nocturnal enuresis management .It includes three medications groups such as desmopressin ,anticholinergic and tricyclic drugs[12].

The pediatric nurse has essential role for promoting the health and well-being of the child and his family as well as she is considered as the key person in caring for the child with nocturnal enuresis. The pediatric nurse has to acquire advanced knowledge and skills to become involved in management of the child with nocturnal enuresis. Family members have many responsibilities in managing their children with NE. They should give their children the most prompt management. Assessment of family care is considered as a primitive nursing intervention. However it requires a careful assessment and management in cooperation with child parents [13] .

Aim of the Study:
The aim of this study to determine the family care for their children with nocturnal enuresis.
Research Question:
What are the care provided by the family members to the child with nocturnal enuresis?

II. Material And Methods

Research Design:
A descriptive Research design was used in this study.
Setting:
This study was conducted in outpatient departments of Sidi- Salem Hospital.
Subjects:
A convenience sampling of 150 caregivers who have children with nocturnal enuresis comprised the study subjects and fulfill the following criteria:
1-Children's age is five years and more
2-Free from other diseases.

The number of subjects was estimated based on EP Info 7 program using the following parameters:-

- Occlusion size = 288for 3months
- Expected frequency =50%
- Acceptance error =20%
- Confidence coefficient =99%
- Minimum sample size =123

Tools for data collection:
one tools was used to collect the necessary data for this study.
Family Care for their Children with Nocturnal Enuresis Structured Interview Schedule:
This tool was developed by the researcher after through reviewing the relevant and recent literature to assess family care for their children with nocturnal enuresis. It included two parts:

Part I: - Family and Children’s Characteristics and Clinical data:-

A - Family characteristics include caregivers' level of education ,occupation, residence, number of children and others family members.
B - Children's characteristics and clinical data: It comprised the child's age, gender, birth order, level of education, onset of disease, duration of disease, causes of disease ,common medication, emotional triggers and family history.
part II :- Family care for their children with nocturnal enuresis:-
It comprised the assessment items of family care that are done by caregivers for their children which included :-
Physical care ; It consisted of certain items such as:-
Avoiding water intake after dinner.
Awaking up the child once or twice at night to urinate.
Awakening the child during the night kindly
Awakening the child during the night by force
Avoiding caffeine based drinks (tea ,cola and chocolates).
Caring of the child's perineal area to avoid urinary tract infection.
Voiding before going to bed as a routine
Taking adequate fluids.
Encouraging urination throughout the day.
Using light at night.
Making the bed room close to bath room as possible.

Psychological care: It comprised certain items such as:-
Providing Privacy to the child during voiding.
Avoiding punishment the child for bedwetting.
Explaining the condition to the child clearly with consideration of the child's age.
Sharing experience with other families having children with the same diagnosis.
Keeping the disease confidentiality from others
Avoiding of criticize the child 's condition /or behavior
Therapeutic measures of child included:-
Medication administration
Regular intake of therapy
Taking the prescribed dose of the therapy.
The taken therapy enhance the child's condition
The taken therapy causes side effects for treatment
Going to physician for child 's therapy side effects
Non pharmacological treatment included:-
Bladder strengthening and kegel /stream interruption exercises.
Using an electric alarm device.
Herbal treatment.
Acupuncture.
Hypnotherapy.
behavior modification such as:-
Parental motivation for their children to increase their commitment in voiding.
Rewarding the child for dry nights.
Recording the child progress on charts for each day dry night.
Training the child for dry bed during night
Clean the child bed immediately after bedwetting
Provide incentive for independent toileting
Rewarding the child for number of dry days
Training the child to practicing of bladder strengthening exercises
Training the child for water restriction before bed time
Training the child to go to bathroom before bed time
Training the child to wake up for urination during sleep
Training the child for applying enuresis alarm during night
Training the child for self-observation and evaluation

The caregivers responses to these statements were done on a three Likert Scale that ranges from 1-3 as following; Never =1, sometimes = 2, often = 3.

The level of care that have been done by caregivers to their children with nocturnal enuresis has been calculated as follow:-

- Satisfactory level =65% and more
- unsatisfactory = less than 65%.

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III. Method

- Official permission to conduct the study was obtained from the responsible authorities in sidi-salim hospital.
- The tool was developed by the researcher after thorough review of the related literature.
- The tool was tested for its content validity by five experts in the pediatric nursing field, the validity was 99%.
- Reliability of the tool was ascertained using an appropriate cronbach's coefficient alpha test. the tool was reliable for children as R= 0.783
- A pilot study was carried out on 15 of caregivers who has children with nocturnal enuresis to test clarity and feasibility of the tool. There is no modifications . These caregivers were excluded from the subjects.
- Every caregivers accompanying the child was individually interviewed for 20 minutes and asked about the management have been done by caregivers. Data collected elapsed 3months started from December 2017 to February 2018.

Ethical considerations:

Ethical Considerations:

- Oral informed consent was obtained from all caregivers after providing appropriate explanation about purpose of the study and they have the right to withdraw at any time.
- Family was ascertained for their data privacy and anonymity was considered,
- Confidentiality of the caregiver's response was guaranteed during the study.

IV. Indentations And Equations

Statistical analysis:

After data were collected, they were coded and transferred into specially designed formats so as to be suitable for computer feeding.

Following data entry, checking, and verification processes were carried out to avoid errors during the data entry. Frequency analysis, and manual revision were all used to detect any errors.

Data were fed to the computer and analyzed using IBM SPSS software package version 20.0. (Armonk, NY: IBM Corp) (2) Qualitative data were described using number and percent. Quantitative data were described using range (minimum and maximum), mean, standard deviation. Significance of the obtained results was judged at the 5% level

V. Figures And Tables

Table 1 portrays the children's characteristics, it was noticed that more than one third of children's age (36.7%) ranged from 6 to less than 9 years. while, 28% of them their ages were less than 6years. Ages ranged from 9 to less than 12 years for 17.3% of children . while, their ages were ranged from 12 years and more for 18%. It was also shown that 62.7% of children were female and 37.3% of them were male. The birth order of children was the second birth for 42.7%, first birth was 36.7% and third birth was 15.3%. It was found that half of children were in elementary schools (50.7%) and 14.7% of them were in primary school. while , 34% of them didn't join school yet ..

Concerning to the clinical data as it was illustrated by table 2 that the disease onset for the high percent of children were either less than 6years for 50.7% or ranged from 6 to less than 9 years for 44.7% of them . The disease onset was 12 years for small percent of children (2%). It was also shown that the duration of children's illness was either less than one year for 38.7% , one year for 20%, two years for 17.3% or three years and more for 24%. Forty percent of children reported that they take medication as Trospanayin drugs . It was found that the causes of children's disease were physical /or organic causes for 28% of children and psychological cause for 37.3% of them .while , 34.7 of children were didn't know.The physical causes of their illness were urinary tract infection , epilepsy, weakness of the bladder muscles, chronic constipation and down syndrome (21.4% ,21.4% ,14.3% ,33.4% and 9.5 % respectively).whereas ,the psychological causes were punishment, divorce ,financial problem, arrival of newborn and fear at night (17.8%,12.5%, 8.9%,55.4% and 5.4% respectively). Concerning family history related to disease, it was found that 8% of children have family history of the disease ,while 92 % of them did not have . The degree of consanguinity in case of existing history was mother for 50% of children and equal percent of them was father and uncle. Unfrountinatily, the preparation of the child for the new arrival was not done by 66.7% of caregivers and it was done by 33.3% of them .

Table 3 represents the caregiver's characteristics. It was shown that the majority of caregivers (95.3%) for children's care were mother, while 4.7% of them were grand- mothers. Concerning education, it was found that 34% of caregivers were illiterate and 28% of them had secondary /or diploma degree but 17.3% of them had master or doctorate degree . Nearly three quarters of caregivers were working (78%). About half of families had three children (47.3%) and 35.3% of them had two children. It was shown also that the number of families' members were five and more for 56% of them . The majority of studied caregivers (84%) were living in a rural area .

Table 4 presents the percentage distribution of caregivers regarding to the physical care of children with nocturnal enuresis. It was noticed that less than half of caregivers were always avoiding water intake for their children after dinner (40%), awaking up the child once /or twice at night to urinate (43.3%) and awakening up their children during the night kindly (46.7%) . More than half of caregivers were awakening up their children during night by force either always (14%) or sometimes (38%) and 48% of them were never do this. High percent also of caregivers were either never (24.7%) or sometimes (41.3%) avoiding taking caffine drinks for their children at night .While, 34% of them were always do it .It was found also that less than half of caregivers were sometimes giving the child adequate fluids during the daytime (39.3%) and caring for children to go to bathroom frequently during the daytime (40.7%).While , these were always have been done by 59.3% and 52.7% of them respectively. It was shown that four items only out of elevent of physical care which have been done always by high percent of caregivers as caring for children to go to bathroom before bedtime (84.7%), cleaning the children's perineal areas after bedwetting (76%), lightening the distance between the children's rooms to the bathroom (80.7%) and making the children 's room close to the bathroom as possible (84%). The mean scores and stander deviations were 71.24 ± 10.57.

Table 5 portrays percentage distribution of caregivers regarding to psychological care of children with nocturnal enuresis. It was found that more than half of caregivers were either never explaining the child' s condition according his age (28%) , sharing experience with other families having the same problem (84%) , keeping the disease confidentiality from others (12.7%) and avoiding of criticism the child's condition /or behavior (16%) or these items have been done sometimes by 51.3%,12.7%,44.7% and 40% of caregivers respectively .while , providing privacy to the child during voiding was done always by 58% of caregivers .Unfrountinatily, punishing the child for bedwetting was done by more than half of caregivers either always (34%) or sometimes (30%). The mean scores and stander deviations were 50.11 ± 16.81.Table 4 presents the percentage distribution of children with sickle cell anemia regarding to their reported experienced pain. Unfortunately, it was shown that high percent of children were never experiencing mild pain (82%). While, the experienced pain were often reported by them as moderate (89%) or severe (39%).

Table 6 shows percentage distribution of care that are provided by caregivers regarding to pharmacological therapy for their children with nocturnal enuresis. It was found that the majority of caregivers (90.9%) were always giving therapy to their children at regular time ,(81.8%) of them giving the prescribed dose of the therapy plus all of them (100%) going to physician for follow up of child's therapy. The mean scores and stander deviations were 75.45 ± 14.05.

Table6 also represents percentage distribution of care that are provided by caregivers regarding to non-pharmacological therapy for their children with nocturnal enuresis. It was illustrated that 95% of caregivers were always using herbal treatment for their children .whereas ,it was never done by 5% of them. It was found that practice of kegal exercises was always done by70.7% of caregivers . while, 29.3% of them were sometimes doing this. The mean scores and stander deviations were 90.24 ± 16.66

. It was illustrated by table 7 that behavior training for reducing/or preventing of nocturnal enuresis have been done either sometimes or never by more than half or even all of the caregivers such as training the child for water restriction before bed time[(sometimes (47.3%), never (9.4%)], training the child to wake up for urination during sleep [(sometimes (48.7%), never (13.3%)] , training the child for self-observation and evaluation [(sometimes (50.7%), never (40 %)].While, training the child for applying enuresis alarm during night has been never done by all caregivers. training the child for water restriction before bed time is the only item that has been done by caregivers either always (43.3%) or sometimes (47.3%).Table 7 also shows percentage distribution of care that are provided by caregivers regarding to attention training for dry bed for their children with nocturnal enuresis. It was observed that all caregivers (100%) were always training their children for dry bed during nigh , 90.7% of them cleaning the child bed immediately after bedwetting and recording the child progress on charts for each day dry night through the week has been done by 79.3% .Table7 portrays the percentage distribution of care that are provided by caregivers regarding to rewarding for behavior modification for their children with nocturnal enuresis . It was found that 60.7% of caregivers were always providing incentive for independent toileting for their children , 57.3% of them rewarding their children for dry nights and 53.3% of them also rewarding their children for number of dry days. While, these items have been done sometimes by caregivers (33.3% ,36% and 40% respectively).

Figure 1 presents the percentage distribution of satisfactory and unsatisfactory levels of care. Unfrountinatily, it was found that the high percent of caregivers had unsatisfactory score (71%) and 29% of them had satisfactory score regarding to the provided care for their children with nocturnal enuresis.

VI. Discussion

Nocturnal enuresis is a fairly common pediatric problem that requires attention because it has a serious psychosocial impact on children as well as their parents. It is a health condition that can lead to isolation of the child from the social activities, diminished their self-esteem, being afraid of going to school as well as children's sense of failure and shame .Assessment of family care is considered as a primitive nursing intervention. However, it requires a careful assessment and management in cooperation with children's parents[14]

The result of the present study revealed that majority of caregivers (70.6%) were in unsatisfactory level and only 29.4% of them were in satisfactory level regarding to the management of their children with nocturnal enuresis. In this context, Zeinab et.al. (2016) [15]found that the majority of caregivers had unsatisfactory level of practice. Medeha (2016) [16]also stated that more than half of mother have unsatisfactory care in his study of Mother Care regarding their children with nocturnal enuresis.

The unsatisfactory level that has been found in this study could be explained in the light of the education background of the caregivers as more than one third of them were illiterate (table 3) where the lack of knowledge may create caregivers' stress for their inability to provide a competent care for children's problems. Irene, (2012) [17]stated that education is a critical factor that affects the mothers' ability to gain the information and give them an opportunity to provide good care for children's enuresis. A similar finding was demonstrated in the study of Elbahnasawy and Elnagar (2015) [18]who cited that a higher relative risk of enuresis in children was observed in families with a mother with lower education.

The working could be other cause as more than two third of the study subject were working (table 3) where the working could hinder the quality management of caregivers as they spend most of their time outside their houses. In contrary, Najeeb (2012) [19]found that more than two third of mothers applying a competent care for their children with enuresis in spite of they were working.

The size of the family might also be a cause, where half of study subjects have five family members or more and this might be representing an over burden on their children care. Torkashvand (2015) [20]mentioned that increase the family size let caregivers are overloaded with many tasks and responsibilities that limited their competency in children' s management.

Many authors elaborated that following the positive approach in physical care management for children with nocturnal enuresis will minimize the hazards of this problem[21,22,23]. National Clinical Guidelines Center (NCGC) stated that the restriction of children's fluids intake before bedtime that is one from the physical care elements is considered a corner stone of management strategy for helping children to be a dry at night. Hanan. (2017) [24]also found that more than half of parents were limited children's fluid intake before bedtime. This was not congruent with the results of the present study, where high percent of caregivers were either never (24.7%) or sometimes (35.3%) avoiding water intake for their children after dinner as clarified in table 4 also.

Ersan et al (2016) [25] in the study of primary nocturnal enuresis who illustrated that the parents of children with nocturnal enuresis awaking up their children for urination during night. This will help children to learn how to recognize the sensation of a full bladder that trigger the arousal from sleep to void at night. On the other hand, the results of the current study showed that a high percent of caregivers were either never (14%) or sometimes (42.7%) awaking up their children once or/ twice at night to urinate. AVOIDING OF TAKING CAFFINE DRINKS AT NIGHT FOR CHILDREN WITH NOCTURNAL ENURESIS WERE EITHER NEVER (24.7%) OR SOMETIMES (41.3%) DONE BY NEARLY TWO THIRD OF CAREGIVERS AS REPRESENTED FROM TABLE 4. THESE COULD BE EXPLAINED ON THE LIGHT OF THEY WERE BELIEVING THAT CAFFEINE DRINKS HAVE NO EFFECT ON THEIR CHILDREN'S NOCTURNAL ENURESIS[26]. THIS WAS NOT CONGRUENT WITH CERKUM ET AL(2016) [27]WHO CITED THAT HIGH PERCENT OF PARENTS OF CHILDREN WITH NOCTURNAL ENURESIS WERE ELIMINATING CAFFEINE DRINKS BEFORE BED TIME FOR THEIR CHILDREN AS CAFFEINE DRINKS WAS CAUSING IRRITATION TO THE URINARY BLADDER AND STIMULATE THE KIDNEY TO PRODUCE MORE URINE AT NIGHT

In this study ,it was found that nearly half of caregivers were either never (6.7%) or sometimes (40.7%) caring for their children to go to the bathroom frequently during the daytime (table 4). This could be related to their limited knowledge regarding to the importance of training their children to go to bathroom frequently at daytime. This was not supported by Ak hila et. al (2010) [28]who stated that greater proportion of parents of children encouraged their off spring to toilet more regularly in the day time as going of those children to bathroom during the day was training them to control their bladder and to be dry at night..

Adequate fluids intake through the day for children with nocturnal enuresis will increase the bladder capacity and help the child to sense a full bladder and the urge to void . These were supported by Nick (2013)

[29]who found that the parents of children with nocturnal enuresis encourage their children to take fluids during the day. Unfrountinatily, the results of the current study were not agreed with these findings, where more than one third of caregivers were either never (1.3%) or sometimes (39.3%) giving their children adequate fluids during the daytime.

The International Children's Continence Society (ICCS) ensure the importance of following psychological care for children with nocturnal enuresis to improve their treatment adherence[30]. Unfrountinatily , the findings of this study were not supported with this issue, where about one third of caregivers were always punishing their children for their bedwetting (table 5). This punishment will affect the children's physical and psychological status as it is increasing the bedwetting episodes and causing depression for children with nocturnal enuresis [31]. Patrina and Caldwell (2016) [32]also stated that the child should not be punished for bedwetting as punishment is physically abusive and will affect his psychological and worse his condition.

It was found in the current study that the explaining of the children' s condition according to their age was always done by small percent of caregivers as illustrated in table 5.This could be explained in the light of inadequate caregiver's awareness about the importance of considering the children's age in their care to get their the understanding and cooperation. The importance of considering the child's age in subject explanation is emphasized by Piaget as he cited that school age children in concrete operational stage of their cognitive development. They are able to think and give reasons as they develop concept of case effect relationship. They can gains new knowledge and develops more efficient problem- solving ability and greater flexibility of thinking [33,34].This was supported also by National Clinical Guidelines Center (2010) [7]who mentioned that it is important to follow the children's age in explaining the condition, effect , aims and the advantages and disadvantages of the possible treatments to the child..

In the present study , It was pointed out that the majority of caregivers were never sharing experience with other families having the same problem (table 5) .This might be due to the majority of families are considering this problem as stigma and so they afraid to join with other families .In addition to, Robson et. Al(2018) [35]who stated that caregivers should share the management approach with other families who having the same problems to help their children and to keep them dry at night.

It is explained that the keeping the confidentiality of the disease and avoiding criticism about the children's condition in front of others are important aspects of psychological care for children with nocturnal enuresis[36].So, it is important to avoid discussion of bedwetting problem in front of others, unless medically necessary to respect the child privacy .unfrountinatily , this was not showed by the results of the current study as high percent of caregivers were either never or sometimes followed this issue as illustrated in table 5.

Therapeutic management for children with nocturnal enuresis in the current study is classified into two groups pharmacological and non-pharmacological treatment. (table 6). Elizabeth et .al (2017) [37]elaborated that the pharmacological therapy have potential role in management of nocturnal enuresis as increasing the bladder capacity, relaxation of the bladder, tightening of the bladder muscles sphincter and making change in the quality of the child's sleep at night. In the present study, it was found that majority of caregivers were following the pharmacological treatment for their children with nocturnal enuresis as clarified as table 6.This could be related to the etiological factors of the disease where nearly one third of children had organic or physical cause such as urinary tract infection ,weakness of the bladder muscles and constipation. This results were in agreement with Rajiv. et al (2016) [38] who illustrated that most of caregivers were always giving pharmacological therapy for their children Gökçe et al. (2014) [39]also clarified the importance of following the treatment options by both families and their children as they are believing that it leads to appositive response .Furthermore ,the using of only two types of non-pharmacological therapy (herbal treatment and practice of kegal exercises) by caregivers in this study is documented by their preference of practicing the pharmacological agents as clarified in table 6. Many authors were not support this issue as Etuk et al. (2011) [40]who found that small percent of caregivers used herbal treatment for their children and Mohammad and Mohsen et al [41] also stated that low percent of parents were using bladder exercise for their children .

Behavioral training is a fundamental therapy for modifying the behavior of children that is considered as first attempt for treating bedwetting and promoting night dryness [42] .Unfrountinatily, the results of this study were not supported with this concept ,where more than half of caregivers were either never or sometimes train the children for water restriction before bedtime, to wake up for urination during sleep , for self –observation and evaluation plus, all the caregivers were never training their children for applying the enuresis alarm at night as clarified in table 7.

Dry bed training is an essential approach in the success of the caregivers' management for their children so they should take responsibility for helping them to learn the skills of being dry [43] .The caregivers in the present study showed their children's training for dry bed as illustrated in table 7. This could be explained on the light of the over concerning of the caregivers about the child training and hygiene for bed dryness at night.

VII. Conclusion

Based on the findings of this study, it was concluded that the care that have been done by the majority of caregivers for their children with nocturnal enuresis was unsatisfactory, where high percent of them had unsatisfactory score (71%) and 29% of them had satisfactory score

Recommendations

Based on the findings of the current study, the following recommendations are suggested.

1. Development of continuous educational program in urological department for caregivers of children with nocturnal enuresis to gain and update their knowledge and skills about technological advances in caring for their children such as use of acupuncture, hypnosis and enuresis alarm.
2. The pediatric nurse develop various audiovisual materials such as booklets and posters about the proper management of children with nocturnal enuresis that involve different aspects of care such as physical psychological care .
3. Assign specialized pediatric nurse in urological units in order to increase the caregiver's awareness about the pharmacological and non-pharmacological therapeutic measures and behavior modification.

Further Studies

1. Factors affecting caregivers' compliance regarding the evidence based guidelines of Nocturnal Enuresis management for children.
2. Effect of behavioral modification educational program on caregivers' knowledge and practices in caring for their enuretic children.

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Table 1: The characteristics of children with nocturnal enuresis.

Items	N(150)	%
Age in years:		
Less than 6years	42	28.0
From 6 years -----	55	36.7
From 9 years-----	26	17.3
From12 years and more	27	18
Min. – Max.	5.0 – 17.0	
Mean ± SD.	8.05 ± 2.79	
Gender		
Male	56	37.3
Female	94	62.7
Birth order		
First	55	36.7
Second	64	42.7
Third	23	15.3
Fourth and more	8	5.3
Education		
Did not go to school	51	34.0
The elementary	76	50.7
The primary	22	14.7
The secondary /or diploma	1	0.7

Table 2: The clinical data of children n=150

Items	N (150)	%
Onset of the disease in years:		
Less than 6years	76	50.7
From 6 years-----	67	44.7
From 9 years-----	4	2.7
From12 years	3	2
Min. – Max.	5.0 – 17.0	
Mean ± SD.	5.87 ± 1.55	
Duration of illness:		
Less than one year	58	38.7
One year	30	20.0
Two years	26	17.3
Three years and more	36	24.0
Taken medication		
No	90	60.0
Yes	60	40.0
Types of medication		

Trospanayin	60	100.0
Causes of the disease Organic / physical cause Psychological cause Don't know	 42 56 52	28.0 37.3 34.7
Causes of the disease		
Organic / physical n (42)		
Urinary tract infection	9	21.4
Weakness of the bladder muscles	6	14.3
Chronic constipation	14	33.4
Down syndrome	4 9	9.5
Epilepsy **Psychological n (56)** Punishment Divorce Financial problems Arrival of new baby Fear at night	 7 5 31 10 3	21.4 17.8 12.5 8.9 55.4 5.4
Family history related to disease:		
Exist	12	8.0
Not exist	138	92.0
Degree of consanguinity in case of exist history=12		
Mother	6	50.0
Uncle	3	25.0
Father	3	25.0
Preparation for new baby		
Done	50	33.3
Not done	100	66.7

Table 3: The characteristics of caregivers

Items	**No=150**	**%**
Caregiver		
Mother	143	95.3
Grandmother	7	4.7
Education		
Illiteracy	51	34.0
Read and write	8	5.3
Primary education	5	3.3
Preparatory education	7	4.7
Secondary education/or diploma	42	28.0
University	11	7.3
Others .e.g master ,doctorate degree	26	17.3
Work		
Working	117	78.0
Not working	33	22.0
Children' numbers in the family		
One	8	5.3
Two	53	35.3
Three	71	47.3
Fourth and more	18	12.0
Number of family members		
Three	8	5.3
Four	58	38.7
Five and more	84	56.0
Residence		
Urban	23	15.3
Rural	127	84.7

Table 4: Percentage distribution of caregivers regarding to physical care for their children with nocturnal enuresis.

Physical care	**Always**		**Sometimes**		**Never**	
	No.	**%**	**No.**	**%**	**No.**	**%**
Avoiding water intake for their children after dinner	60	40.0	53	35.3	24.7	24.7
Awaking up the children once /or twice at night to urinate	65	43.3	64	42.7	21	14.0
Awakening up the children during the night kindly	70	46.7	61	40.7	19	12.7
Awakening up the children during the night by force	21	14.0	57	38.0	72	48.0

Avoiding taking caffeine drinks for their children at night	51	34.0	62	41.3	37	24.7
Caring for children to go to bathroom before bedtime	127	84.7	19	12.7	4	2.7
Cleaning children's perineal area after bedwetting	114	76.0	31	20.7	5	3.3
Giving the child adequate fluids during the day time	89	59.3	59	39.3	2	1.3
Caring for children to go to bathroom frequently during the daytime	79	52.7	61	40.7	10	6.7
lightening the distance between the child's room to the bathroom	121	80.7	24	16.0	5	3.3
making the child 's room close to the bathroom as possible	126	84.0	14	9.3	10	6.7
Mean scores± SD	71.24 ± 10.57					

Table 5: Percentage distribution of caregivers regarding to psychological care for their children with nocturnal enuresis.

Psychological care	**Always**		**Sometimes**		**Never**	
	No.	**%**	**No.**	**%**	**No.**	**%**
Providing privacy to the child during voiding	87	58.0	26	17.3	37	24.7
Punishing the child for bedwetting	51	34.0	45	30.0	54	36.0
Explaining the child' s condition according his age	31	20.7	77	51.3	42	28.0
Sharing experience with other families having the same problem	5	3.3	19	12.7	126	84.0
Keeping the disease confidentiality from others	64	42.7	67	44.7	19	12.7
Avoiding of criticism the child's condition /or behavior	66	44.0	60	40.0	24	16.0
Mean scores± SD	50.11 ± 16.81					

Table 6: Percentage distribution of care that are provided by caregivers regarding to pharmacological and non- pharmacological therapy for their children with nocturnal enuresis.

The pharmacological therapy n (66)	**Always**		**Sometimes**		**Never**	
	No.	**%**	**No.**	**%**	**No.**	**%**
Giving therapy at regular time	60	90.9	6	9.1	0	0.0
giving the prescribed dose of the therapy	54	81.8	10	15.2	2	3.0
The taken therapy enhance the child's condition	40	60.6	15	22.7	11	16.7
The taken therapy causes side effects for treatment	9	13.6	9	13.6	48	72.7
Going to physician for child's therapy follow up	66	100.0	0	0.0	0	0.0
Mean scores± SD	75.45 ± 14.05					
The non- pharmacological therapy n (41)						
Herbal treatment	39	95.0	0	0.0	2	5.0
Practice of kegal exercises	29	70.7	12	29.3	0	0.0
Mean scores± SD	90.24 ± 16.66					

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Table 7:Behavior modification that are provided by caregivers for their children with nocturnal enuresis.

Behavior training for reducing/or preventing of nocturnal enuresis for their children	**Always**		**Sometimes**		**Never**	
	No.	**%**	**No.**	**%**	**No.**	**%**
Training the child for water restriction before bed time	65	43.3	71	47.3	14	9.4
Training the child to go to bathroom before bed time	111	74.0	39	26.0	0	0.0
Training the child to wake up for urination during sleep	57	38.0	73	48.7	20	13.3
Training the child for applying enuresis alarm during night	0	0.0	0	0.0	150	100
Training the child for self-observation and evaluation	14	9.3	76	50.7	60	40.0
Mean scores± SD	51.07 ± 11.18					
Attention training for dry bed						
Training the child for dry bed during night	150	100	00	00	00	00
Clean the child bed immediately after bedwetting	136	90.7	13	8.6	1	0.7
Recording the child progress on charts for each day dry night through the week	119	79.3	25	16.7	6	4.0
Mean scores± SD	60.89 ± 11.42					
Rewarding for behavior modification						
Provide incentive for independent toileting	91	60.7	50	33.3	9	6.0
Rewarding the child for dry nights	86	57.3	54	36.0	10	6.7
Rewarding the child for number of dry days	80	53.3	60	40.0	10	6.7
Mean scores± SD	75.33 ± 26.46					

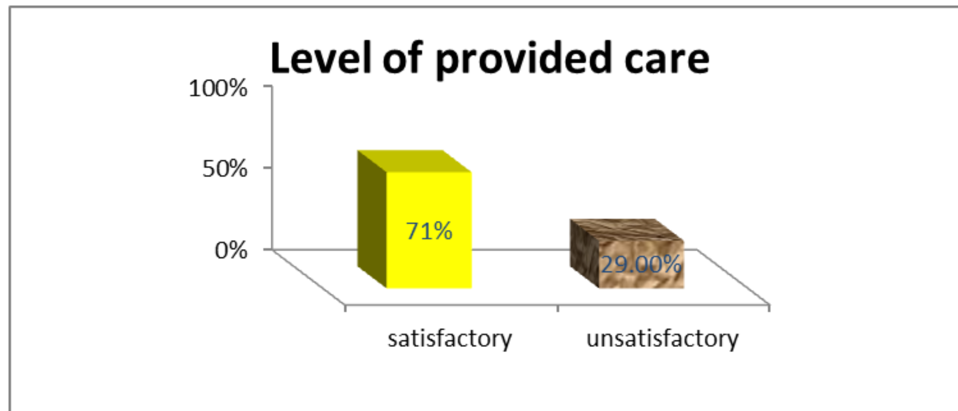

Figure 1: The percentage distribution of satisfactory and unsatisfactory levels of management for their children with nocturnal enuresis

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