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Developing an Effective Service for Enuretic Children in UNRWA's Health Centeres

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Developing an Effective Service for Enuretic Children in UNRWA's Health Centers

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Dedication

To all children in my country who are suffering from nocturnal enuresis.

Hoping that this study, as a small contribution, will be to help them to enjoy life

Declaration

I Certify that this thesis submitted for the degree of Master is a result of my own research, except where otherwise acknowledged, and that this study (or any part of the same) has not been submitted for a higher degree to any university or institution.

Signed

Khaldoon Mohammad Husein Zaid

Date: February 20, 2015

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And, not in the last instance, I cannot forget the efforts and sacrifices that had been made by my beloved parents, God have mercy on their souls, to give me the best possible education.

Abstract

Purpose

The purpose of this study is to find out the barriers that families and patients face while trying to manage their enuretic children in our health centers.

Method

This study was designed as a qualitative descriptive cross – sectional study. There were two parts to the questionnaire, section I and section II. Section I, directed to the parents, was a structured questionnaire aiming to collect demographic data. Section II; open-ended questions were used to determine if there were barriers that parents and their children faced. Interviews with social workers from the eight medical centers that were involved in the study were performed. In addition, two elementary schools, boys and girls from Qalqilia belonging to UNRWA, were visited and, separated interviews with every social worker were performed. Interviews with Medical Officers working within UNRWA medical centers were performed also, to explore if they are adopting and using any local technical instruction or other national or international guidelines.

Forty questionnaires were distributed in eight northern medical centers in West bank, 5 questionnaires for every center. The first five families of an enuretic child were offered the questionnaire in each health center.

Data analysis & Results

The total number of children with PMNE included in the study was 37 aged between 7- 12 years old; the modal age was 7-8 years old. Of the total number of studied children 20 (54.1%) were males while 17 (45.9%) were females. The ratio male to female is 1.2: 1

The majority (64.9%) were from refugee camps and 29.7% from cities. This is a normal finding due to the fact that seven of the eight health centers studied, are situated inside the camps.

The number of families' members varies 83.8% 4-8 members. For the educational level of the parents, 20.3% have university degree, 37.8% finished high school and 41.9% didn't finish high school. Approximately 29.7% described their socio-economic status as good, 43.2% as middle and 27% as poor.

The relationship between the child and his family was found; positive in 64.9% tense; 18.9% weak; 16.2%. Physical punishment was used in 21.6% of the children.

Positive family history of nocturnal enuresis was common, the percentage was 83.8%.Children's attitude was 24.3% careless, 67.6% shy or sad and 8.1% angry, 40.5% humiliated, insulted or bullied.

Children's reasons to overcome bedwetting; 32.4% to avoid humiliation, 24.3% to be equal with his peers, 16.2% to build self-confidence, 10.8% to participate in school activities and, 16.2% had more than one reason.

When caregivers were asked if they attend UNRWA health centers to seek help in resolving their enuretic children problem, 18.9% declare no, reasons for not attending our health centers, lack of awareness, time and family problems were evoked.

Treatment satisfaction was found in 76.7% while 10% were not satisfied and 13.3% could not tell. Reasons for dissatisfaction were; lack of improvement, absence of drug treatment and doctors' opinion that the child will "outgrow of the condition".

Approximately 35% of cases included in the study stopped attending the clinics due to different causes lack of time, treatment failure, family problems and father refusal were the most evoked causes.

. **Conclusions**

Lack of awareness, time and information, treatment failure, father refusal and family problems constituted the main barriers faced by families while trying to treat their enuretic children. In addition, absence of technical instructions, guidelines, and diagnostic and management algorithms made the treatment less effective.

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الملخص

العنوان:

تطوير خدمة فعالة للأطفال المصابين بسلس البول الليلي اللاإرادي في المراكز الصحية التابع لوكالة غوث وتشغيل اللاجئين الفلسطينيين في شمال الضفة الغربية

إعداد:

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إشراف:

د. دوغلاس سيمكس & لوما الطرزي

ملخص:

تهدف هذه الدراسة الى معرفة العوائق التي تعيق أو تمنع عائلات الأطفال أو الأطفال الذين يعانون من سلس البول الليلي اللاإرادي عند طلب المساعدة والعلاج في المراكز الصحية التابعة لوكالة غوث وتشغيل اللاجئين الفلسطينيين في شمال مناطق السلطة الفلسطينية.

منهجية الدراسة:

تم توزيع أربعين استبيانا في ثمانية مراكز صحية بواقع 5 استبيانات لكل مركز. تم استبيان أول خمس عائلات زارت المركز.. تمت إعادة سبعة وثلاثون استبيانا. كذلك تم إجراء بعض المقابلات مع المرشدين النفسيين العاملين في تلك المراكز الصحية الثمانية. كما وأجريت مقابلتان مع المرشدين النفسيين العاملين في مدرستين ابتدائيتين تابعتين لوكالة غوث وتشغيل اللاجئين الفلسطينيين في مدينة قلقيلية واحدة للبنين والأخرى للبنات.

وأجريت مقابلات مع الاطباء العاملين في تلك المراكز الصحية وذلك لاستكشاف منهجية التشخيص والعلاج، وإذا ما تم استخدام أو اعتماد أية مبادئ توجيهية وطنية أو دولية.

تحليل البيانات والنتائج

تم استخدام برنامج (SPSS) لتحليل النتائج 35٪ من الحالات المشمولة في الدراسة توقفت عن متابعة العلاج لأسباب مختلفة أهمها: ضيق الوقت، وفشل العلاج، والمشاكل الأسرية ورفض الأب متابعة أبنائه للعلاج.

النتائج:

إن النقص في الوعي والوقت والمعلومات، وفشل العلاج، ورفض الأب والمشاكل العائلية تشكل المعيقات والحواجز الرئيسية التي تواجهها الأسر أثناء محاولتهم علاج أطفالهم من سلس البول الليلي اللاإرادي وبالإضافة إلى ذلك، فإن عدم وجود تعليمات فنية وإرشادات، وجداول طبية تساعد في التشخيص والعلاج تؤدي الى عدم فعالية العلاج بشكل كامل ومرضي.

Chapter I

Nocturnal Enuresis

1.1 Introduction

Because of its deep impact, bedwetting constitute a very distressful problem for the child and the family, many parents consider that punishment is a very effective way in the treatment of bedwetting. A mother told me that she used to light a matchstick, blow it out and touch her daughter's thigh with it as a punishment / treatment for bedwetting! Most parents believe that bedwetting is not a physical condition and are uncomfortable initiating a dialogue with physicians (Dunlop et al, 2005).

On the other hand, a survey reported that 68% of parents said that their child's paediatrician or primary care provider had never addressed bedwetting during a routine visit regardless of the child's age (Dunlop et al, 2005).

Acquisition of urinary bladder control is a significant developmental milestone for the child and family. This is complex, and has not been completely understood. Urinary bladder control is a complex learning process that consists of different stages of child development. Children's development is related to their health and well-being, where growth represents the quantitative changes which are measurable and easily observed and studied, and development represents the qualitative changes that can be achieved by acquiring skills, and is more complex and less easily measured and studied (Erikson, 1982).

According to Erikson (Erikson, 1982), there are eight stages of the psychosocial development during the human lifespan. The first three stages of Erikson's theory of psychosocial development take place during the period (0 to 5 years) of age, and are connected to the development of urinary bladder function. In the first stage (0-1.5 year) the infant's development is entirely dependent on the quality of the care provided by the parent or care giver. In this stage the child learn to develop basic trust. In the second and third stages (1-5 years) children of this category learn to take control over their body functions and feel independent; Erikson believed that toilet training is very important in this stage of development, when the child accomplishes these stages successfully confidence grows. Consequences for health and well-being of not controlling the urinary bladder function may constitute an emotional and behavior challenge for the child. These include shame, guilt and other problems with peers. In addition it may become a problem between the child and the

parent with a negative impact on the relationship between them with consequences like poor self-esteem and parent frustration (Dixon, Stein, 2000)

It is obvious how important the parents are in Erikson's theory and that they must support the child during the process of achieving urinary bladder control. It is also important for health professionals to support parents or care givers in their efforts to help their children become dry so they can overcome their frustration. Treatment failure or inadequacy of Nocturnal Enuresis (NE), can lead to psychological disturbances such as impaired personal, social and emotional behavior (Fergusson et al., 1986; Butler et al., 2002; Van Tijen et al., 1998).

1.2 Literature Review

PubMed was searched according to PICO strategy table (1.1).

In the first stage of the search I've found 439 articles, and then I started to exclude articles according to their title's relevance to the research, after this stage, 145 articles remains. All included articles' references were searched to find and include other important and relevant articles to my research. All relevant articles were read and many of them were cited in the study.

Unfortunately articles related to the purpose of the research were rare, only one article was found, a semi qualitative study, and highlighted six main categories of barriers that prevent parents to seek help.

Table 1.1: PICO strategy

Population	Intervention	Outcome
Children	Nocturnal Enuresis	Management
Young people	Bedwetting	Treatment
School age	Services	Intervention
	Enuresis	guidelines

1.3 What is already known about the topic?

Enuresis is a common childhood problem which represents a very serious and distressful problem. Due to its high prevalence during infancy, bed wetting is considered as a dysfunction only after the age of 5 years (DSM IV).

At school age it represents one of the most frequent problems that can have a deep impact upon the child's behaviour, emotional health and social life. Primary nocturnal enuresis is a worldwide problem. It has been described as both the most prevalent and chronic of all childhood problems (Collins, 1980).

1.3.1 Definition

Enuresis is an involuntary or unintentional bedwetting or wetting of one's pants (Comer, 1992). Enuresis could be defined as the inability to develop urinary continence or bladder control after an age at which such control is normally attained by a majority of children in the general population (Schwartz & Johnson, 1981).

Diagnostic and Statistical Manual of Mental Disorders, fourth edition (DSM IV) defined enuresis as the repeated voiding of urine into the bed or clothes at least twice per week for at least three consecutive months in a child who is at least 5 years of age, with the absence of any congenital, acquired defects of the CNS or urinary tract.

G. Smith describes enuresis as a normal voiding that takes place at an inappropriate or socially unacceptable time or place; importantly, the function of the bladder and urethra is normal. Incontinence is the involuntary loss of urine, which is demonstrable objectively and is a social or hygienic problem; this is associated with dysfunction of the lower urinary tract (G. Smith, 2007).

Nocturnal enuresis (NE) refers to voiding during sleep, diurnal enuresis defines wetting while awake. All infants are enuretic, and acquisition of daytime and then night-time control is part of normal development (G. Smith, 2007).

Enuresis has a clear genetic component: 44% and 77% of children were enuretic when one or both parents, respectively, were themselves enuretic (G. Smith, 2007).

1.3.2 Classification

The word enuresis is derived from a Greek word (enourein) that means "to void urine." It can occur either during the day or at night. The terms of bedwetting and nocturnal enuresis indicate involuntary urine voiding occurring during the night while the child is sleeping. Diurnal enuresis means that involuntary urine voiding occurs during the day while the child awake (Lane & Robson, 2014).

Nocturnal Enuresis can be classified, according to the absence or presence of symptoms, into monosymptomatic or non-monosymptomatic. Monosymptomatic enuresis occurs in the

absence of any daytime voiding symptoms, such as frequency, urgency, or daytime incontinence. Nonmonosymptomatic enuresis is more common; when a detailed history is obtained, the majority of children have at least subtle daytime symptoms. This subgrouping is essential because, children with Lower Urinary Tract (LUT) symptoms, such as increased/decreased voiding frequency, daytime incontinence, urgency, hesitancy, straining, a weak stream, intermittency, holding manoeuvers, a feeling of incomplete emptying, post-micturition dribble and genital or LUT pain, differ clinically and therapeutically from children without these symptoms (ICCS, 2006).

Enuresis can also be categorized into primary and secondary forms. Secondary enuresis is defined as wetting that develops after a minimum of 6 consecutive months of dryness. The clinical presentations of children with primary and secondary enuresis are otherwise similar, which suggests a common pathogenesis (Lane, & Robson, 2009).

1.3.3 Prevalence

Nocturnal enuresis is a very common occurrence in younger children. In the literature the prevalence is quoted as 15-20% in five years aged children (ERIC, 1995).

Many epidemiological surveys in western countries suggest that the prevalence for boys is around: 13-19% at5 years, 15-22% at 7 years, 9-13% at 9 years and 1-2% at 16 years, while the prevalence rates for girls are reported to be: 9-16% at 5 years, 7-15% at 7 years, 5-10% at 9 years and 1-2% in the late teenage years (Devlin, 1991).

Enuresis is more common in males. The reported prevalence of enuresis at the ages of 7 and 10 years are 9% and 7%, respectively, in boys and 6% and 3%, respectively, in girls. No racial predisposition has been documented (Lane, & Robson, 2014).

According to Wm Lane and M Robson the prevalence of enuresis gradually declines during childhood. Of children aged 5 years, 23% have enuresis, in elementary school age children 10% of 7 years old children and 4% of 10 years old children still have enuresis (Lane, & Robson, 2014). In adults the reported prevalence is 0.5-2% 49 (Schwartz & Johnson 1981).

This gradual reduction in prevalence with age has previously led to the conclusion that children will ‘grow out of it’ and the condition has been often minimized. In fact many researches showed that this distressing condition can have a deep impact on emotional wellbeing and social development. Children and young people with this condition often miss

on opportunities to participate in school activities such as sleep over in school trips and they will start to feel "different" (ERIC, 1995).

There is evidence that bedwetting and combined wetting are associated with parent-reported psychological problems and children behaviour problems (Joinson, Heron, Emond, Butler, 2007) and stress within families can be considerable with an increased risk of child punishment including child abuse (Melina, Juliana, Fernando, Ronaldo, Eloísio, 2009).

Epidemiological surveys to determine the prevalence of (NE) in Arab countries are infrequent. A cross-sectional survey conducted on the public primary school in Aden, Yemen[32]showed that the prevalence of (NE) was 17.2%, which is similar to that reported in a study done in Ankara, Turkey (17.2%) and the UK (18.9%), but lower than that reported in Al Mukala primary school, Hadramout, Yemen (28.6%) Zaria, Nigeria (22.2%), and Amman, Jordan (23.8%), but higher than the prevalence reported in Mumbai, India (7.61%), Malaysia and United Arab Emirates (each 8%), and Tafila, Jordan (8.8%) (Yousef, Basaleem, Yahiya, 2011).

In another cross-sectional study conducted in Amman, Jordan showed that bedwetting was commoner in boys than girls. The prevalence rates among boys and girls were 33.7%, and 15.7% respectively. The overall prevalence rate of primary nocturnal enuresis (PNE) declined with age from 48.9% at 6 years to 21.1% at 7 years and 8.4% at 8 years. Family history of enuresis was present in 50.5% of the cases, while low socioeconomic class was found in 67.3%. Fifty percent of the parents sought medical help and 75% of the children received drug therapy. At least 14% of parents reacted with anger and punished their children at some time. The overall prevalence of PNE in Jordanian children was 23.8%, this is higher than the 8-15% reported by others (Hazza, & Tarawneh, 2002).

Nocturnal enuresis (NE) is defined as the involuntary urine voiding during the night by a child who is old enough to be expected to have bladder control. When bladder control has never been attained his condition is named primary nocturnal enuresis (PNE).

1.3.4 Assessment

Four important goals should be achieved when assessing children or young people with NE, to establish the diagnosis, to find out what the parent/child wants, to rule out or identify underlying causes and to identify the factors that will influence choice of management strategy" (NICE Clinical Guidelines, No. 111, 2010). When daytime urinary symptoms are

present a detailed history of these symptoms (Table 1.2) should be carried out to determine whether the condition is monosymptomatic or non-monosymptomatic [34]a very important and crucial moment because the management differs. In this research, monosymptomatic enuresis constitutes the subject. Treatment and care delivered to the patients should be culturally appropriate and accessible to patients with special needs such as learning and physical disabilities (NICE Clinical Guidelines, No. 111, 2010).

In decision making process concerning treatment and care, parents should be involved. This should be with the child's agreement for older children (NICE Clinical Guidelines, No. 111, 2010).

It is important that parents understand that their children are not wetting the bed deliberately and that enuresis is not voluntary. So, punitive measures should not be used in the management of enuresis (Goel, & Gupta, 2012).

Table 1.2 Daytime urinary and bowel symptoms

Symptoms	Monosymptomatic	Nonmonosymptomatic without diurnal enuresis	Nonmonosymptomatic with diurnal enuresis
Urge incontinence	-	+	+++
Dribbling	-	+	++
Weak stream	-	+	++
Holding maneuvers	-	+	++
Feeling of incomplete emptying	-	+	+
Constipation	+	_	**NA**
Wetting during nap	+	+	+++
Encopresis	+	+	+++
Intermittency	_	_	+
Decrease voiding frequency	_	_	++
Encopresis and Constipation	_	_	+

(Naseri, & Hiradfar, 2012).

Many health organizations, institutions and researchers have been elaborated guidelines, pathways and approaches to assess, diagnose and treat children with nocturnal enuresis.

It is important to understand that the diagnosis Primary Monosymptomatic Nocturnal Enuresis (PMNE), is made by exclusion, so, in order to exclude other types of nocturnal enuresis we should take a thorough history of the condition.

A rapid screening series of questions can help in categorizing children with NE, such questions are listed in (Table 1.3).

Table 1.3 "Rapid screen to determine type of enuresis"

Question	If response is positive, then consider
Previously dry in the last 6 months	NMNE or SNE
Associated with daytime urine control issues	NMNE
Constipation or fecal soiling	NMNE
Severe recent stress	SNE
If responses to all above questions are negative, then consider	MNE

MNE=monosymptomatic nocturnal enuresis NMNE=nonmonosymptomatic nocturnal enuresis SNE=secondary nocturnal enuresis.

(Bayne, & Skoog, 2014).

This rapid screening is the first step in order to categorize the condition then, a thorough history should be carried out where all symptoms listed in (Table 1.2) must be fully explored in order to be excluded or not, depending on the case.

After history taking and physical examination performed, physicians should ask about the child's motivation for treatment and, how much this problem is bothering him. Behavior modification can succeed, only if the child is interested in participation (Bayne, & Skoog, 2014).

A very interesting and important "Key priorities for implementation" elaborated by NICE clinical guideline 111 pp 7-8 (NICE Clinical Guidelines, No. 111, 2010). In these priorities we can notice the translation of the "patient-centered care" concept into the clinical practice, this involvement in all stages of treatment will increase the adherence to the process and contributing to the success of the treatment.

Chapter II

Primary Monosymptomatic Nocturnal Enuresis (PMNE)

2.1 Definition:

Monosymptomatic enuresis is defined as the involuntary urine voiding during the night in the absence of any daytime voiding symptoms, such as frequency, urgency, or daytime incontinence.

2.2 Etiology

Many etiological theories have been proposed with the cause of nocturnal enuresis now considered as heterogeneous. A new model has been elaborated in order to facilitate the clinical understanding. Based on the empirical findings this new model termed "three - systems model" considers that bedwetting results from excessive nocturnal urine production (Inadequate nocturnal vasopressin production) and/or nocturnal bladder over activity (BOA) coupled with an inability to arouse to bladder sensations (Butler, 2004)

2.2.1 Inadequate nocturnal vasopressin production

The hypothalamic/pituitary axis, normally, increases the release of vasopressin overnight causing a decrease in urine production; many children with NE lack this nocturnal rise of vasopressin release and, resulting in increased nocturnal urine production and disparity between nocturnal urine production and urinary bladder capacity (Rittig, & Knudsen, & Norgaard, & Pedersen, & Djurhuus, 1989).

Another aspect of urine production, which is not related to vasopressin release, is seen in children with nocturnal polyuria (NP), this condition is defined "as urine production greater than 130% of the child's expected bladder capacity" (Bayne, & Skoog, 2014).

> "It is important to evaluate children with NP for conditions that raise the likelihood of nocturnal diuresis, such as sleep disordered breathing, heart abnormalities, metabolic conditions, and/or excess nocturnal fluid and solute intake. Sleep disordered breathing in particular has been the subject of many studies and is well known to cause or be associated with PMNE" (Bayne, & Skoog, 2014).

2.2.2 Bladder over activity

30-32% of children with (NE) have uninhibited bladder contractions (Watanabe, Imada, Kawauchi, Koyama, Shirakawa, 1996).This is associated with a smaller functional bladder capacity FBC (Watanabe, & Kawauchi, 1995). Children with overactive bladder usually failed to respond to desmopressin or an alarm system (Yeung, & Chiu, & Sit, 1999).

Frequent daytime voiding (more than seven per day), urgency, low or variable FBC, small voided volumes, variability in the size of wet patch in the bed and waking during or immediately after wetting are clinical identifiers of overactive bladder.

2.2.3 Inability to arouse

Most of the parents describe their enuretic children as difficult to arouse or heavy sleepers. Normally, children can wake spontaneously to void, enuretic children are unable to wake spontaneously to void (Bower, Moore, Shepherd, *et al*.1996).

Failure to arouse from sleep when the bladder reaches its maximum capacity seems to be the problem, and this has been confirmed through EEG studies (Watanabe, Imada, Kawauchi, Koyama, Shirakawa, 1996). So it is crucial to understand that difficulty with sleep arousal is central to all children with all types of (NE) (Bayne, & Skoog, 2014). This sleep disorder is characteristic in children with monosymptomatic nocturnal enuresis and, differentiates them from children who have nocturia where the child is able to awaken and void (Bayne, & Skoog, 2014). Also it is important to assess the child's wake ability before initiating treatment, as the success of an intervention such as the enuresis alarm is dependent on the child's responsiveness to the alarm triggering (Gontrad, Schaumgurg, Hollman, Eiberg, Rittig, 2001).

2.2.4 Genetic factors

Genetic predisposition has strong evidence, but the exact mechanism of inheritance of nocturnal enuresis is unknown. A comprehensive review of the published data on the genetic basis of enuresis performed by Alexander von Gontard *et al*. concluded that genetic factors are the most important in the aetiology of nocturnal enuresis but somatic and psychosocial environmental factors have a major modulatory effect (Gontrad, Schaumgurg, Hollman, Eiberg, Rittig, 2001).

2.2.5 Maturational delay

One of the most common accepted cause of nocturnal enuresis, but also the most difficult to prove, is delayed functional maturation of the central nervous system, which reduces the

child's ability to inhibit bladder emptying at night. The child's bladder will fill, but the sensory output resulting from the stretching of the bladder is not perceived or is not sent to the brain and, thus, central cortical control over the urinary sphincter contraction does not occur. Failure of the arousal mechanism may also contribute to the inability to inhibit micturition (Cendron, 1999).

2.2.6 Psychological factors

Psychological stressors have long been thought to play a role in enuresis. In the great majority of cases, nocturnal enuresis is not caused by psychological factors; instead the enuresis creates secondary psychological problems for the child, especially affecting self-esteem (Tietjen, & Husmann, 1996; Cendron, 1999).

2.3 Treatment of PMNE

All enuretic children need a comprehensive history taking and an evaluation of daytime voiding symptoms or comorbidities to differentiate subgroups of nocturnal enuresis, once the diagnosis is accurately established professionals can proceed to treat the condition. The majority of children with monosymptomatic nocturnal enuresis can be treated efficaciously (Walle, & Rittig, & Bauer, & Eggert, & Marschall-Kehrel, & Tekgul, 2012).

A thorough explanation of the condition, its implication and impact on the child and his family and an assessment of the motivation degree of the child are very helpful.

Myths and other beliefs should be discussed with the parents, just like “the child is misbehaving and should be punished for wetting his bed”, parents can encourage him/her to clean his/her bed but physical punishment should not be part of any treatment (Nield, & Kamat, 2004).

Children with PMNE can be treated in primary health care settings by physicians or adequately educated nurses (Neveus, Eggert, Evans, et al., 2010; O'Flynn, 2011).

A significant decrease in wet nights, higher cure rates and lower relapse rates were results of a systematic review of simple behavior interventions compared with controls. Such interventions are reward systems, star chart for dry nights, lifting or waking the children at night to urinate, there wasn’t enough evidence to evaluate retention control training (stretching the bladder) and fluid restriction (Glazener, Evans, 2002; Glazener, Evans, 2004; Caldwell, Nankivell, Sureshkumar, 2013).

As general measures all children should restrict fluid consumption during the evening hours only. In order to prevent an excessive thirst or dehydration at the end of the day which makes the child to drink more fluids, an adequate hydration during the day and at school should be provided.

Many difficulties with fluids intake can occur, some of the enuretic children deliberately limit their fluid intake during the day and at school, this may be due to bladder dysfunction or toilet related anxieties, which result in more fluid consumption before bedtime. A schedule of fluids consumption can help to overcome this problem, children can drink two-thirds of their fluids before the end of the school day then one- third of the fluids in the evening, no fluids intake is permitted in the last hour before bed. Children who have activities, sport or other physical activities should be hydrated adequately. Fluids intake control should not affect adequate hydration of the child.

Arousals difficulties, which constitute one of the mechanisms implicated in NE's aetiology, can be overcome by establishing a stable and reliable bedtime routine, to eliminate excessive fatigue. Restless enuretic children are difficult to respond bladder stimulation or alarm systems (Bayne, & Skoog, 2014).

Bladder advice, bed alarm and desmopressin are first line therapy. Resistant cases should be referred to a specialist doctor. Anticholinergics and imipramine were selected as second line treatments (Neveus, & Eggert, & Evans, et al., 2010).

Bedwetting alarm and desmopressin were recommended by the International Children Continence Society (ICCS) as first line interventions for children with primary monosymptomatic nocturnal enuresis (PMNE)**.**

2.3.1 First – line treatment

Enuretic children between five and seven years of age have not been offered treatment. NICE has published a guideline on the assessment and treatment of enuretic children with recommendation for children less than seven years.

2.3.1.1 Enuresis alarm

This is one of the most effective and has the best long term cure rate and has a level 1, grade A ICI (International Consultation on Incontinence) recommendation. It involves the whole family and, parents should understand that, because of its disruptive nature, it requires a

significant commitment in time and effort; therefore, only motivated children and families are advised to participate. Also, parents are advised to wake their children when the alarm starts, otherwise children tend to turn it off and go back to sleep (Bayne, & Skoog, 2014; Walle, & Rittig, et al., 2012).

The response to an alarm is not immediate and it should be continued for 2-3 months or until the child achieve 14 consecutive dry nights (whichever comes first).Children from families who are committed to the treatment for a significant period can achieve a high rate response with low rate relapse. Despite this findings cure rates are still less than 50% (Glazener, Evans, Peto, 2005). Child behaviour problems and parent intolerance may lead to the early termination of the treatment (Wagner, Johnson, 1988). Therefore, alarm treatment may not be suitable for some families, in these cases desmopressin may be an alternative.

Children who achieved 14 consecutive dry nights should be advised to contact the clinic if relapse occur and a second trial should be considered (Walle, & Rittig, & Bauer, & Eggert, & Marschall-Kehrel, & Tekgul, 2012).

2.3.1.2 Desmopressin

This is a vasopressin analogue that reduces the amount of urine production overnight, it has a level1, grade A ICI recommendation in 2009.Two different formulations of desmopressin are available, oral tablet and orally disintegrating lyophilisate tablet (melt).At doses of 200/400 μg for the tablet and 120/240 μg for the melt, these two formulations have been shown to be clinically bioequivalent. Due to low food interaction the melt formulation is more suitable for the younger age group with a limited interval between meal and drug administration (Juul, 2013; De Guchtenaere, Van Herzeele, Raes, et al., 2011).

A randomized double-blind placebo-controlled study (Vande Walle, Bogaert, et. Al., 2006), concluded that:

> "Oral lyophilisate causes a marked decrease in urinary output in hydrated children with PNE. A small dose range (120-240 microg) is likely to control diuresis for a period corresponding to a night's sleep (7-11 h) in most children with PNE. However, some patients might require a higher dose to obtain antidiuresis for the complete night".

Many guidelines recommend giving desmopressin 1 hour before the last voiding before bedtime and to reduce fluid intake, 1 hour before desmopressin is given, until the child wakes next morning.

According to NICE clinical guideline, when desmopressin is considered for treatment the child and his/her parents should be informed that a reduction in wetness is expected immediately but relapse can occur when treatment is withdrawn, fluid should be restricted1 hour before desmopressin is given, until the child wakes next morning, desmopressin should be taken at bed time, treatment should be continued for 3 months; and repeated courses can be used after a break period (O'Flynn, 2011).

Parents should be counselled about the risk of hyponatremia associated with desmopressin administration. The risk of this complication is higher when nasal spray is used (Bayne, & Skoog, 2014). Because of this nasal spray is not recommended.

Structured desmopressin withdrawal program improves response to treatment and it is superior to regular treatment with abrupt termination (Marschall-Kehrel, & Harms, 2009).

In a randomized trial study (Evans, & Malmsten, & Maddocks, & Popli, & Lottmann, 2011) to compare the efficacy of long-term primary nocturnal enuresis treatment using desmopressin versus enuresis alarm, a similar proportion of patients across groups showed a ≥ 50% reduction in wet nights/week (desmopressin: 37.5%, alarm: 32.2%) and achieved dryness (desmopressin: 32%, alarm: 37%). Desmopressin shows a higher compliance 95-98% of patients took >75% of tablets, 50-78% used alarm >75% of nights. Approximately 32% of patients withdraw early from the alarm group, this high withdrawal percentage indicate the importance of considering family motivation before selecting treatment. If children show no improvement with one first-line treatment, despite adherence, an alternative therapy should be tried.

2.3.2 Second line treatment

2.3.2.1 Combined therapy, Enuresis alarm and desmopressin

Cases with refractory primary nocturnal enuresis may benefit from combined drug therapy when neither the alarm nor pharmacologic therapy has been effective.

A retrospective analysis study to evaluate the combination of the enuresis alarm and desmopressin concluded that "children who need the addition of desmopressin have a higher

nocturnal urine production in wet nights but do not seem to differ in terms of bladder reservoir function characteristics" (Van Tijen et al.1998) .

Another randomized control trial (Ahmed, & Amin, & Ali, & Shalaby, 2013) randomly assigned Saudi children, in three groups, to receive an Enuresis Alarm alone (EA group), Desmopressin alone (D group) or a combination of both (EA/D group).Patients were followed weekly during treatment and for 12 weeks after treatment withdrawal. Results showed a significant difference, only between the EA and EA/D groups (p=0.025).

Relapse rates were higher in the D group (66.6%) than in the EA (16.6%) and EA/D (33.3%) groups. A significant difference was observed between the D and EA groups only (p=0.019).

Effectiveness was seen in all groups, desmopressin produce an immediate response but relapses were common, enuresis alarm produce a gradual response that persists after the treatment.

The combined therapy was superior to the alarm in achieving an immediate response; however, its effect was not better than that of the alarm long term.

This combined therapy should be reserved to resistant cases where parental intolerance is eminent.

2.3.2.2 Anticholinergics

These drugs act on smooth muscle by inhibiting acetylcholine, they are also called parasympatholitics. They are used to treat spasms or conditions with disturbances in the bladder or gastrointestinal motility.

Anticholinergics are used in children with small or overactive bladders with frequent voiding, they have the effect of decreasing the urge to pass and allow the bladder to hold more urine (NICE Clinical Guidelines, No. 111, 2010).

The recommended dose is 5 mg of Oxybutynin; this may be increased to 10 mg in older children or 2 mg of Tolterodine at bedtime. Constipation is the common side effect of anticholinergics, children who receive these drugs should be monitored for constipation since it can impact negatively the results (Bayne, & Skoog, 2014).

They are used in certain specific situations when their use is justified and recommended. The International Children Continence Society (ICCS) recommends its use only after

desmopressin or the alarm therapy has failed. In monotherapy they are not effective in the treatment of PMNE they may be used in combination with desmopressin to increase bladder capacity over the night in children who has NE with daytime incontinence (Naiwen, & Baskin, 2014).

2.3.2.3 Tricyclic antidepressants

Tricyclic antidepressants (imipramine, amitriptyline, and desipramine) are a third-line treatment for monosymptomatic enuresis. Due to their potential side effect (cardiac arrhythmias, hypotension, hepatotoxicity, central nervous system depression, interaction with other drugs, and the danger of intoxication by accidental overdose), tricyclics are reserved for treating resistant cases only. Imipramine in combination with Oxybutynin may be superior to monotherapy (Glazener, & Evans, & Peto, 2003).

Before starting treatment with these drugs, parents and children should know that:

- Not all patients will achieve a reduction in the number of wet nights.
- The drug should be taken at bedtime.
- The dose should be increased gradually.
- Most of the children relapse after stopping treatment.
- Serious adverse effect of drug overdose.
- The initial treatment course is for 3 months, further courses may be considered.

The dose of imipramine is 25 to 50 mg at bedtime. Imipramine should be withdrawn gradually when stopping treatment for bedwetting in children and young people (NICE Clinical Guidelines, No. 111, 2010).

Despite their effectiveness in reducing the number of wet nights, tricyclics and desmopressin, in comparison with alarm treatment, have higher rates of relapse after stopping the treatment. Only half the children will relapse after alarm treatment (Glazener, & Evans, Peto, 2003).

Current guidelines suggest that use of imipramine should be limited to specialty centers with extensive experience treating PMNE. Imipramine has been found to have a risk of QT prolongation in children, and a careful cardiac history for the child and the family should be obtained before starting use of the medication (Bayne, & Skoog, 2014).

2.3.2.4 Other Treatments

Two recent systemic reviews where 31 Randomized Control Trials involving 2490 patients concluded that:

1. Hypnosis, psychotherapy, acupuncture and chiropractic had a weak evidence to support their use. The evidence was provided in each case by single small trials, some of them of poor quality, these interventions have a promising potential but need more data from quality randomized trials to be recommended (Glazener, & Evans, & Cheuk, 2005).
2. Dry Bed Training (DBT) and Full Spectrum Home Training (FSHT) were efficient when used with an alarm but, there was insufficient evidence to support their use without alarm. There was some evidence that shows an augmentation of alarm use when combined with DBT (Glazener, & Evans, & Peto, 2004).

Resistant cases of PMNE

When the improvements in symptoms are less than 50% despite treatments and active intervention the condition is labeled as nonresponsive or refractory nocturnal enuresis. In this situation, possible causes of treatment failure should be carefully investigated, (Table 2.1) (Bayne, & Skoog, 2014) include some of these possible causes with suggestion for the next step. Possible treatment protocols for MNE are given in Table (2.2) (Bayne, & Skoog, 2014).

Table 2.1: Possible Reasons for Treatment Failure of Enuresis

CAUSE	NEXT STEP
Constipation or retained fecal burden	Bowel regimen
Occult voiding dysfunction	Behavioral therapy, post void residual volume, uroflowmetry
Treatment compliance failure	Family goal discussion and assessment of child's interest in participation
Neurologic condition	Detailed neurologic examination and consider lumbar magnetic resonance imaging
Psychological stressors	Psychological evaluation and counseling as needed

Metabolic concerns	Laboratory evaluation and consider endocrine referral
Sleep disorders	Sleep laboratory referral with polysomnography
Sleep disordered breathing	Sleep specialist referral or otolaryngologist referral

(Bayne, & Skoog, 2014).

Table 2.2: Possible Treatment Protocols in MNE

TYPE OF MNE	TREATMENT
All cases	Limit fluids before bed (£200 mL)
	Void before bed
	Regular sleep and wake schedule
Classic PMNE	Alarm (first)
	Desmopressin (second)
Nocturnal polyuria	Desmopressin
Sleep disordered breathing	Sleep study or referral to an otorhinolaryngologist
Small bladder capacity	Alarm
Overactive bladder (suspected)	Desmopressin and oxybutynin
	Alarm and oxybutynin
Small bladder and nocturnal polyuria	Desmopressin and alarm (consider oxybutynin as well)

MNE = monosymptomatic nocturnal enuresis PMNE = primary monosymptomatic nocturnal enuresis.

(Bayne, & Skoog, 2014).

Chapter III

Data collection and data analysis

3.1 Materials & Methodology

This study was designed as a qualitative descriptive cross – sectional study. There were two parts to the questionnaire, section I and section II. Section I, directed to the parents, was a structured questionnaire aiming to collect demographic data. Section II; open-ended questions were used to determine if there were barriers that parents and their children faced. Interviews with social workers from the eight medical centers that were involved in the study were performed. In addition, two elementary schools, boys and girls from Qalqilia belonging to UNRWA, were visited and, separated interviews with every social worker were performed. Interviews with Medical Officers working within UNRWA medical centers were performed also, to explore if they are adopting and using any local technical instruction or other national or international guidelines.

Initially, the questionnaire was comprehensive containing general demographic questions, (section I), for demographic data acquisition and a special part, (section II), with direct and narrative questions to find out barriers. Considering the fact that the purpose of this study is not to collect demographic data, it was decided to use only section II. Pilot testing both sections, showed lack of answers to the questions included in section II. I attributed this result to the fact that questioned families already attend our medical centers for assessing and treating their enuretic children. Therefor I decided to use the questionnaire in its two parts, (section I and section II), in this way, the study will be enriched and demographic data acquisition and analysis may be helpful to get an overview of the problem and to open new horizons for future researches.

Forty questionnaires were distributed in the eight northern medical centers from West Bank, 5 questionnaires for every center. 37 were returned; of these 20 were male children and 17 female children. The first five families who attend the clinic because of nocturnal enuresis were given the questionnaire.

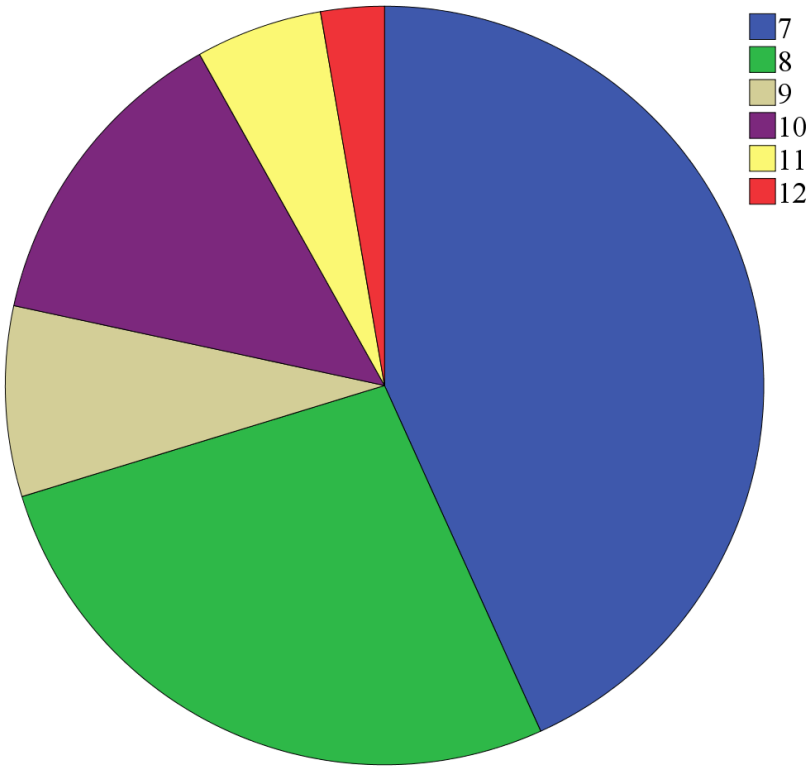
3.2 Data analysis & Results

The total number of children with PMNE included in the study was 37 aged between 7- 12 years old; the modal age was 7-8 years old (Figure 3.1). Of the total number of studied

children 20 (54.1%) were males while 17 (45.9%) were females. The ratio male to female is 1.2: 1.

The majority (64.9%) were from refugee camps and 29.7% from cities. This is a normal finding due to the fact that seven of the eight health centers studied, are situated inside the camps.

Fig. (3.1) Age frequency (year)



The number of families' members varies 83.8% 4-8 members. For the educational level of the parents, 20.3% have university degree, 37.8% finished high school and 41.9% didn't finish high school. Approximately 29.7% described their socio-economic status as good, 43.2% as middle and 27% as poor.

None of the studied children had only diurnal enuresis, 78.6% had nocturnal enuresis while 21.4% had both nocturnal and diurnal.

91.9% of the children had been toilet trained, of them 44.1% at the age of 2 years, 26.5% at 1.5 years and 14.7% at 6 years of age.

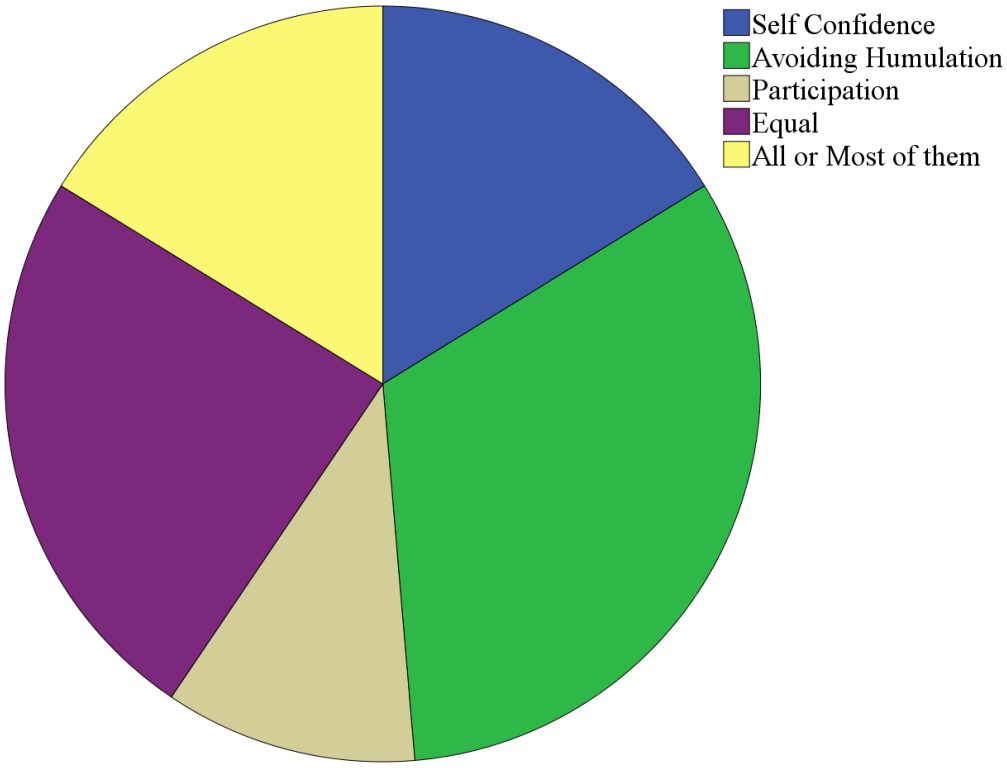
The relationship between the child and his family was found; positive in 64.9% tense; 18.9% weak; 16.2%. Physical punishment was used in 21.6% of the children.

Positive family history of nocturnal enuresis was common, the percentage was 83.8%.Children's attitude was 24.3% careless, 67.6% shy or sad and 8.1% angry, 40.5% humiliated, insulted or bullied.

Children's reasons to overcome bedwetting; 32.4% to avoid humiliation, 24.3% to be equal with his peers, 16.2% to build self-confidence, 10.8% to participate in school activities and, 16.2% had more than one reason (Figure 3.2).

When caregivers were asked if they attend UNRWA health centers to seek help in resolving their enuretic children problem, 18.9% declare no, reasons for not attending our health centers, lack of awareness, time and family problems were evoked.

Fig. (3.2) Children's reasons to overcome bedwetting



Treatment satisfaction was found in 76.7% while 10% were not satisfied and 13.3% could not tell. Reasons for dissatisfaction were; lack of improvement, absence of drug treatment and doctors' opinion that the child will "outgrow of the condition". For different reasons,

35.1% stopped to attend the clinics. A list of these reasons is shown in (Table 3.1) Some of the caregivers 32.4% sought treatment in another health provider centers.

Table 3.1 List of reasons for not attending the clinics

Reasons	Percentage
Father refusal to continue treatment	**15.4%**
Treatment failure	**30.8%**
Family problems	**23.0%**
Lack of time	**30.8%**

3.2.1 Interviews

A. Two interviews with schools social workers were held.

The first interview was with boys' elementary school social worker, the total number of pupil who attends the school was 467pupils. Of them, only 15 cases 3.2% have been taken in the social worker's evidence, for follow up, as enuretic children. None of them was referred to physicians. The main reasons suggested were:-

1. Social stigma
2. Family denial
3. Lack of communication between children and their families are the barriers of not accepting medical referrals or follow up sessions, even not declaring the condition, he said.

The second interview was with the girls' elementary school social worker, the total number of pupil was 750 pupils. Of them only 4 cases 0.5% was registered as enuretic. In addition to the barriers mentioned by boys' school social worker,

1. Parental lack of awareness and of understanding the condition was another barrier according to girls' school social worker.

B. Interviews with social workers from UNRWA health centers in northern West Bank.

These interviews were conducted with every social worker from the eight northern health centers. Many reasons were mentioned as barriers.

1. Parental lack of information about the condition, some of the mothers believed that the condition is normal, because of its personal experience as an enuretic child.
2. The only therapeutically interventions were psychological and behavioral conducted by the social workers, while the involvement of physicians, was not enough which led to parental dissatisfaction.
3. The relationship with the medical officers is insufficient, the feedback system doesn't work.
4. Absence of technical instructions constitutes another barrier to approach the problem systematically.

C. Interviews with medical officers from UNRWA health centers in northern West Bank.

Reasons identified as barriers to effective treatment were:

1. The absence of precise technical instruction, guidelines and pathways to assess and treat the condition.
2. Medical officers are working according to their personal understanding and knowledge of the problem.
3. The majority of the medical officers proceed to refer the enuretic children to the social worker after a clean urinalysis result.
4. In this mode, the psychological aspect of the problem was considered, but other aspects weren't.

As an UNRWA medical officer employee I, myself, used to proceed in this manner until I was involved seriously in this medical condition.

Barriers that prevent parents to seek help.

No articles were found in the literature that proposed to survey communities in order to find out any barriers or obstacles that prevent parents or their children to seek medical help to overcome their condition.

One article, a semi qualitative study (Henry, 2009), highlighted six main categories of barriers that prevent parents to seek help.

These six main categories are:-

1. **Language/understanding:**

   Parents had a low awareness of causes and effects of continence problems; inability to understand the psychology of continence problems and discuss things with their child; and possible language difficulties.

2. **Motivation:**

   Stigma; difficulty in talking about problems; a general belief that after years of dealing with the problems 'nothing will help'; and had been told their child would grow out of it naturally.

3. **Knowledge:**

   Parents do not know how to access help; there is insufficient accessible information; healthcare professionals may not be proactive in offering what is available; and there is insufficient outreach by healthcare professionals to those who most need help.

4. **Cost:**

   Parents are afraid that help will cost them more money; they do not know what is free; and they may not claim benefits to which they are entitled because they do not know they are available.

5. **Time:**

   Accessing help takes time and energy. Many of the parents have more than one child and often more than one child with continence problems. Inappropriate referrals and long delays meant that some parents waited two years or more before seeing the right person.

6. **Stress:**

   Parents become depressed and stressed and they may ask for medical help for themselves rather than the child. Depression also results in demotivation and lack of action.

3.3 Discussions

Nocturnal enuresis is a very stressful medical condition that has its impact on the child and his family, parents' and children's lack of awareness and in information about the condition make them to ignore or refuse to seek medical help. In this study it is difficult to find out why parents with enuretic children do not attend the clinics, the sample was made from cases who already attend the clinics, and only a survey for local community or even to the national scale can accurately answer this question. Approximately 35% of cases included in the study stopped attending the clinics due to different causes (Table 3); lack of time, treatment failure, family problems and father refusal were the most evoked causes.

Despite that nocturnal enuresis is a common problem; it is not a priority in the training programs for medical professionals (Walle, & Rittig, *et al.*, 2012). The absence of unifying set of recommendations for a diagnostic and management algorithm of enuresis undermine the success of the treatment.

3.4 Conclusions and recommendations

Lack of awareness, time and information, treatment failure, father refusal and family problems, constitute the main problems that families faced while trying to treat their enuretic children. In addition, the absence of technical instructions, guidelines and diagnostic and management algorithms make the success of the treatment limited at present.

To overcome this and to enhance attendance to the clinics and the management a number of measures should be taken. I recommend:-

- To improve people mainly parents and child's caregiver's knowledge and education by clear massages, new brochures that explain clearly the condition.
- To involve health professionals, medical officers, more in the assessment, management and follow up, it is not enough to do laboratory tests and to refer children to the social workers.
- To raise and improve school's social workers knowledge and awareness on how to discover all possible non-medical cases of PNE among children at their schools.
- To develop more effectively the relationship, referral and the feedback system should be more effective between social workers and medical officers.
- Clear pathways, flowcharts, algorithms, (see annexes), better planning and good guidelines to be provided to the professionals.
- To involve the local community in campaigns to increase awareness of this condition and to trigger initiatives to help these children.
- New researches in a national scale to gather accurate information concerning all aspects of nocturnal enuresis.

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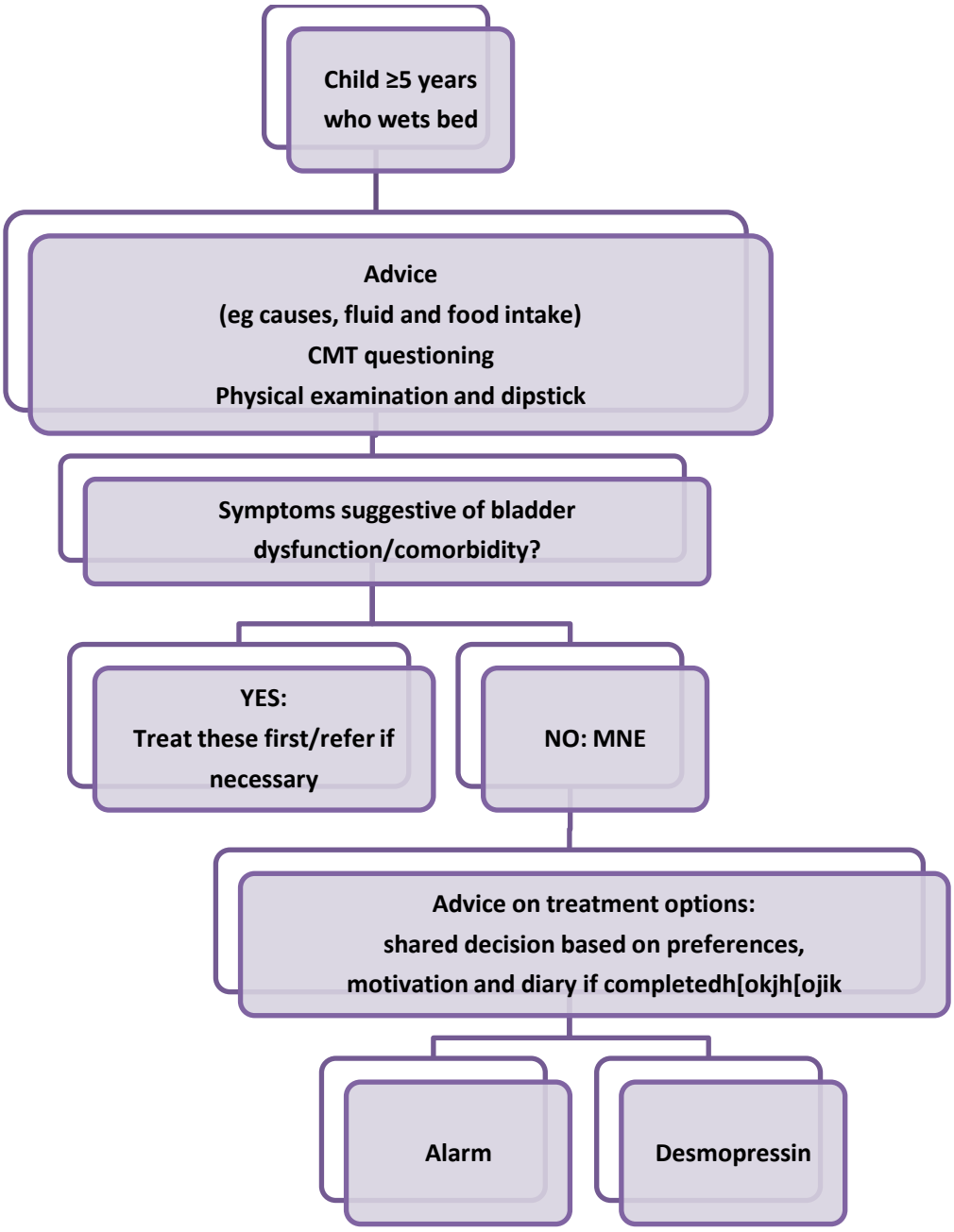
Annexes

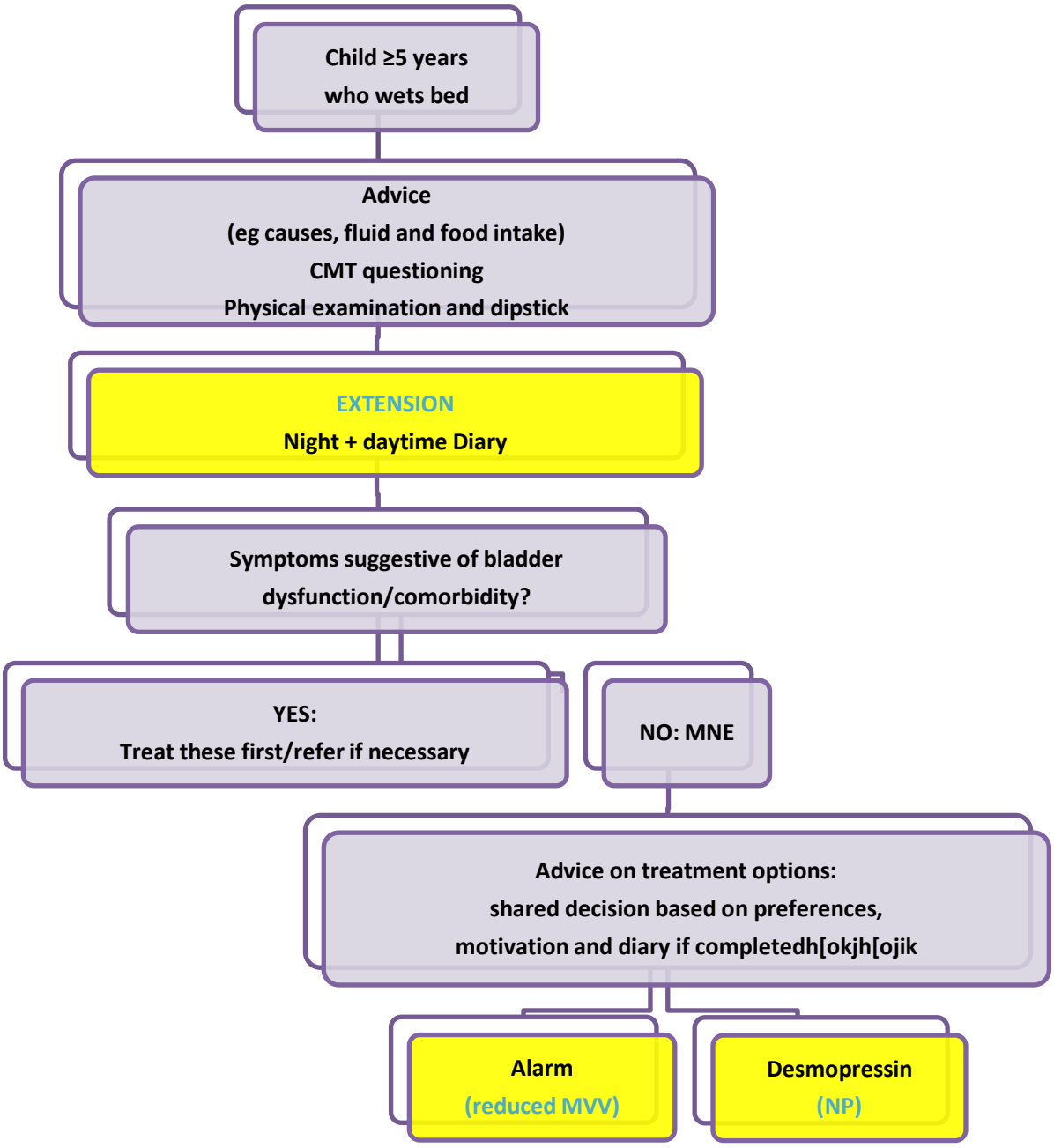
Annex 1. Flowcharts summarizing recommended evaluation of children with enuresis.

A. Minimal Strategy



Annex 2. Flowcharts summarizing recommended evaluation of children with enuresis.

B. Optimal Strategy



CMT= **C**linical **M**anagement **T**ool

MNE=**M**onosymptomatic **N**octurnal **E**nuresis

MVV= **M**aximum **V**oided **V**olume

NP= **N**octurnal **P**olyuria

Annex 3. Checklist clinical management tool (CMT)

Signs and symptoms	Presence Absence		Consider Referral if positive (R)
	P	A	
Nocturnal enuresis	**Yes**	**No**	
Does the child wet the bed? • **Number of nights per week ----------**	**Yes**	**No**	
Establishes severity, which is suggestive of prognosis			
Age ≥ 5 years	**Yes**	**No**	
Younger patients are likely to experience spontaneous resolution without intervention; treatment only considered in children 5 years			
Symptoms suggestive for underlying bladder dysfunction			

Leakages of urine during the day
• **Drops of urine in the underpants**
  ○ **Before voiding**
  ○ **After voiding**
• **Very wet underpants**
• **Frequency of leakage (N = episodes per day)**
• **Intermittent or continuous leakage every day?**
• **History of daytime incontinence over 3½ years of age**
	Yes	**No**	**R**

Suggestive of overactive bladder/NMNE			
Urinary frequency (# of voids) (≥ 8 x/day)?	**Yes**	**No**	**R**
Suggestive of dysfunctional voiding			
Sudden and urgent need to urinate?	**Yes**	**No**	**R**
Suggestive of overactive bladder			
Holding maneuvers observed (e.g. Vincent's curtsey – pressing heel into perineum, leg crossing, standing on tiptoes)	**Yes**	**No**	**R**
Suggestive of dysfunctional voiding			
Needs to push in order to urinate, i.e. need to use abdominal muscles to strain to pass urine?	**Yes**	**No**	**R**
Suggestive of dysfunctional voiding			
Interrupted urinary stream, or several voids, one after another?	**Yes**	**No**	**R**
Suggestive of dysfunctional voiding			
History of urinary tract infection?	**Yes**	**No**	**R**
Often associated with underlying bladder dysfunction			
Illness and/or malformation? • **Of kidneys and/or urinary tract** • **Of spinal cord**	**Yes**	**No**	**R**

Signs and symptoms	Presence Absence		Consider Referral if positive (R)
	P	A	
Comorbidity – factors that might predict therapy resistance			
Bowel movements – presence or history of the following? • **Constipation (3 bowel movements/week)** • **Traces of feces in the underpants (fecal incontinence) – not due to insufficient wiping of the bottom?**	**Yes**	**No**	**See annex 4 May be treated in primary care**
May predict treatment resistance; resolution of constipation may resolve enuresis			
Psychological, behavioral or psychiatric problems? • **Evidence of ADHD, ADD, autism, etc.**	**Yes**	**No**	**R**
May predict treatment resistance			
History of motor and/or learning disabilities or delayed development	**Yes**	**No**	**R**
Delayed development may be suggestive of central nervous system pathology			
Drinking habits			
• **Quantity and type of fluid intake?** • **Drinks more than one glass during the evening?** • **Drinks during the night?**	 **Yes** **Yes**	 **No** **No**	
Water turnover in children is reported to be 1500 ml/m2 body surface area per day42 Fluid intake in the evening (after the evening meal) should be minimized since increased fluid intake results in higher dieresis volumes during the night Fluid intake during the night should be avoided			
Exclude diabetes mellitus (dipstick test) Psychogenic polydipsia poses risk for water intoxication with desmopressin			

Notes for physicians are given in gray text

Annex 4. Rome III criteria for diagnosis of constipation

At least two of the following criteria must be met for ≥2 months before diagnosis:

(a) ≤2 defecations in the toilet per week

(b) ≥1 episode of fecal incontinence per week

(c) History of retentive posturing or excessive volitional stool retention

(d) History of painful or hard bowel movements

(e) Presence of a large fecal mass in the rectum

(f) History of large diameter stools that may obstruct the toilet

Patients should not have a diagnosis of irritable bowel syndrome

Annex 5. List of Abbreviation

Abbreviation	Full Word
BOA	Bladder Over Activity
CNS	Central Nervous System
DSM IV	Diagnostic and Statistical Manual Mental Disorders, fourth edition
EA	Enuresis Alarm
ERIC	Enuresis Resource and Information Centre
ICCS	International Children Continence Society
ICI	International Consultation on Incontinence
LUT	Lower Urinary Tract
MNE	Monosymptomatic Nocturnal Enuresis
NE	Nocturnal Enuresis
NICE	National Institute for Health and Care Excellence
NMNE	Nonmonosymptomatic Nocturnal Enuresis
NP	Nocturnal Polyuria
PMNE	Primary Monosymptomatic Nocturnal Enuresis
PNE	Primary Nocturnal Enuresis
SNE	Secondary Nocturnal Enuresis
UNRWA	United Nations Relief and Works Agency

Annex 6. The questionnaire used in the study

Developing an Effective Service for Enuretic Children in UNRWA's Health Centers from Northern WB

Questionnaire Concerning Bed Wetting
Research by Dr. Khaldoon Zaid / Master's Degree in Child Health
Al Quds University /College of Graduate Studies
Supervisors: Dr. Douglas Simkiss & Luma Tarazi
The aim of this questionnaire is to find out any obstacles or difficulties that families faced when they are seeking help for their children.
All data collected is subject of absolute secrecy and, it will be used only for scientific research purposes.

Definition: Enuresis is defined as the repeated voiding of urine into the bed or clothes at least twice per week for at least three consecutive months in a child who is at least 5 years of age, with the absence of any congenital, acquired defects of the CNS or urinary tract (DMS-IV-TR)

Name of the person who helped in filling this questionnaire……..Health Center……

1.	Your Current place of residence?	☐Camp	☐Village	☐City
2.	What is the number of family members?	( ) Give number		
3.	What is the educational level of the parents?			
3.1	Father	☐University	☐High school	☐Less
3.2	Mother	☐University	☐High school	☐Less
4.	Economic situation of the family?	☐Good	☐Accepted	☐Not accepted
5.	What is the date of birth of your child?			
6.1	What is the number of your children?	( ) Give number		
6.2	What is the order of the child between his siblings?	( ) Give number		
7.	Does your child wet his or her clothes during the night or/and day?	☐Night	☐Day	☐Both
8	How long have you considered bedwetting a problem?			
9.	How many times a week does your child wet the bed?	☐Once	☐Twice	☐More
10.	Was your child able to have dry nights?	☐Yes	☐No	
11.	If the answer to the previous question is yes, what is the time period for that?	☐Less than one month	☐More than one month	
12.	Did you train your child for toilet? If Yes, at what age?	☐Yes Age:	☐No	☐Sporadic
13.	How is the child's relationship with his family?	☐Positive	☐Tensioned	☐Poor
14.	Was your child exposed to violence?			
15.	Have there been other bedwetters in the family? Check all that apply	☐Brothers/sisters	☐Parents	☐Uncles/aunts
16.	Are parents divorced or separated?	☐Yes	☐No	
17.	The child lives with	☐Mother	☐Father	☐Both
18.	What is the child attitude towards his problem?	☐unconcerned	☐Timid & sad	☐ Angry
19.	Do you or any family member do any of these things now to help treat the problem?	☐Limit fluids ☐Wake child up	☐Punish failure	☐Reward success

20.	Is your child ever teased, bullied, or humiliated for being a bedwetter?	☐Yes	☐No	☐Don't Know
21.	From your child's point of view, please check all the reasons he or she wants to overcome bedwetting. Please circle the most important.	☐Build self-esteem ☐Feel more confident ☐Avoid humiliation ☐Share family experiences ☐Be equal with other children ☐Go to camp or sleepovers ☐Be able to share a bed with their siblings ☐Other		
22.	Have you visited one of the UNRWA's Health Centers?	☐Yes	☐No	
23.	If the answer to question 22 is **NO**, please mention the reasons, difficulties and/or obstacles they have faced you or any other reasons, please mention it in detail	1 2 3 4		
23. A	If the answer to question 22 is **YES**, were you satisfied about the level of service provided and the results of treatment?	☐Yes	☐No	
23. B	If the treatment results and the level of service provided were dissatisfactory please indicate the reasons or obstacles from your point of view?	1 2 3 4		
23. C 23. C1	Did you stop attending our clinic? If Yes, please mention the reasons?	☐Yes 1 2 3 4	☐No	
24.	Did you go to any other medical point for your child's problem of bed wetting?	☐Yes	☐No	
25.	What are your recommendations to overcome the difficulties and obstacles, as well as improve the service provided for the treatment of your child's problem?	1 2 3 4		