NOCTURNAL ENURESIS AMONG CHILDREN AGED FIVE TO TWELVE YEARS IN IDIKAN COMMUNITY, IBADAN.

By

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DEDICATION

This work is dedicated to the LORD OF HOST for HIS Amazing Grace in starting and finishing this project.

ABSTRACT

Nocturnal Enuresis (NE) (Bedwetting at night) is a problem associated with several psychological and behavioural consequences. Studies have been carried out in many countries establishing its prevalence and complications. However, in Nigeria, few studies are available about the problem. The objectives of the study therefore, were to determine the prevalence of NE, document problems associated with it and make appropriate recommendations.

This is a descriptive cross sectional survey. Simple random sampling technique was used to select two out of the four streets in Idikan. All the households were enumerated, only families who had children aged between 5 to 12 years were interviewed. A pre-tested questionnaire was used to seek information about the frequency of NE, explored the methods of management and the perceived effects on the child and family.

Five hundred and two families who had children aged between 5-12 years were interviewed, of which 284 (56.6%) families had at least an enuretic child. Of the 1678 children aged 5 to 12 years in Idikan (821 males and 857 females), 374 (22.3%) children had NE comprising 198 (53.0%) males and 176 (47.0%) females, giving a male to female ratio of 1.1:1 and estimated overall prevalence rate of 22.3%. The gender specific prevalence of NE was 24.1% and 20.5% for the males and female respectively. The mean (± SD) age of all the enuretic children was 8.5±1.4 years; the mean age of male

children was 8.4±1.7 years while the mean age of female children was 8.6±1.8 years. No significant difference was found in the average age of male and female enuretic children in Idikan community (t= 1.100; p=0.270). Twelve (4.2%) of the respondents describe NE as normal childhood problem while 94 (33.1%) attributed it to too much play during the day time, 27 (9.5%) to deep sleep, 40 (14.1%) to excessive fluid intake while 5 (1.8%) believed it was due to curse or spell from ones enemies. Forty-six (16.2%) respondents would simply ignore the child and 236 (83.1%) believed that the child must be punished. One hundred and nine (38.4%) respondents abused the child verbally, 77 (22.1%) beat the child. Ninety-two (32.4%) called the children funny names, 67 (23.6%) ridiculed them, 90 (31.7%) compelled the children to wash and sun dry the beddings and 35 (12.3%) of the respondents exposed the child's enurctic behaviour to the peer group. All the respondents' mode of managing enuresis focused mainly on the enuretic child. The observed reactions of the children by their parents vary. One hundred and seven (37.7%) of them indicated that their children start the day unhappy when they wet the bed. 123 (43.3%) said the children were afraid of getting out of bed, 53 (18.7%) children remained in bed till others have gone out of the room, while 112 (39.4%) reported that the enurctic child quickly changes position, clothes and beddings. The behaviour of the children in response to their parent's reactions to the enuresis shows that 158 (55.6%) cried, 49 (17.3%) feel ashamed and withdrawn while 257 (90.5%) dislike the ridicule. A total of 158 (55.6%) believed that social stigma is attached to nocturnal enuresis as the age advances. Most of the respondents 203 (71.5%) indicated their willingness to seek help

from health care practitioners, 72 (25.4%) would rather keep it secret while 9 (3.2%) did not know what to do.

In conclusion, the prevalence of (NE) is high among this age group and is highly stigmatized with increasing age. Thus, parent readily punish such children. Mothers should be educated on appropriate treatment options to NE.

KEY WORDS: Nocturnal Enuresis, Children, Management and Social Stigma.

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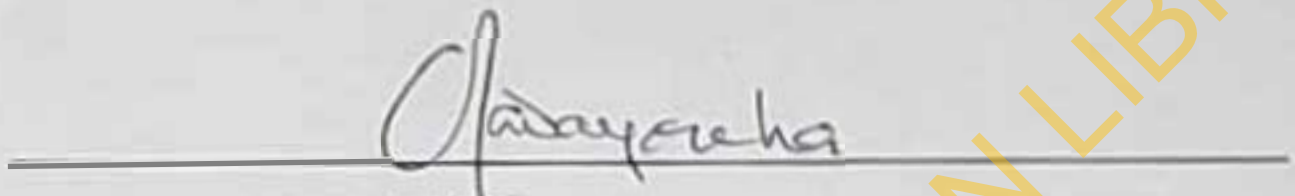
CERTIFICATION

I certify that this study was carried out by Nwakaku Bibian KUFORIJI in the Department of Health Promotion and Education, College of Medicine, University of Ibadan, Ibadan, Nigeria.



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CHAPTER ONE

INTRODUCTION

BACKGROUND OF THE STUDY

The term Enuresis is commonly used to refer to persistent childhood bed wetting which occurs in the absence of any obvious neurological or urological pathology and continues beyond the age by which most children, without the need for special attention, have gained normal control over functioning of their bladder (Bollard & Nettelbeck, 1982; Verhuist,1985; Yakinci et al., 1997; Johnson, 1998). Generally, it can be defined as unintentional bed wetting while asleep at night. In technical terms, enuresis is often used to refer to functional difficulties in bladder control. It is a Latin derivation from Greek word "ENOUREIN", meaning "to urinate in" (Stein & Susser, 1967; Halpern, 1977).

The various clinical forms of enuresis described in literature by various authors like: (Glicklich, 1951, Bollard 1981, DSMIV 1994, Goin 1998, Stein et al 1998, Elder 2000) include:

1. Nocturnal Enuresis is bed wetting which occurs while one is asleep at night, (DSM IV, 1994)
2. Diurnal Enuresis is bed wetting during the day when the child is not actually sleeping, (Stein et al 1998, Elder 2000)

3. Primary enuresis (EN-you-REE-sis) is the medical term commonly used for bed-wetting in someone over age 5 that has never gone at least a year without wetting the bed, (Glicklich 1951).
4. Enuresis maturational Bed wetting in adult age (Stein et al 1998).
5. Secondary enuresis is bed-wetting in a child who had had bladder control. These terms do not apply to wetting problems due to physical illness or anatomical defect. (Goin 1998)
6. Organic Enuresis refers to bed-wetting, which occurs as a consequence of neurological or physiological malfunctioning, (Elder 2000)
7. Functional Enuresis has some psychological implications, (Bollard 1981).

There is a remarkable difference between bed wetting at night (Nocturnal Enuresis) and the wetting of bed, which occur involuntarily when the child is not sleeping during the daytime; diurnal enuresis may imply a neurological deficit (Stein et al., 1998). Normally as the child grows and develops, it is expected that the child gains control of his/her bladder both day and night. But it becomes a problem when by the age of ten, the child continues to bed wet at night in the absence of neurological disorder, like epilepsy or structural abnormality of the urinary tract (Cohen, 1975). Therefore, Enuresis is the involuntary empting of the bladder, either day or night while asleep after the age of five years (Goin 1998).

During the period of toilet training, at one time or the other. children May unavoidably experience "accidental" bed wetting periods while they sleep. However, some do have more bed wetting episodes than others. Parents initially pay little attention to bed wetting at night, (Goin, 1998). But as the child grows, the greater the frequency and the persistency, the more problematic it becomes.

In United States of America, approximately live (5) million children suffer from enuretic difficulties (Warzak, 1993). Glicklich, (1951) identified the early interest expressed about the problems of bed wetting in European medical textbooks as far back as the sixteenth century. Some authors have observed that nocturnal enuresis is regarded as one of the most common problems encountered in paediatric practice (Banerjee et al., 1993).

Statement of the Problem

Nocturnal Enuresis (NE) is one of the undesirable childhood problems today that involves large number of children who find it difficult to apply appropriate control of their bladder while asleep. This embarrassing situation goes on in many homes without being addressed. In some homes it continues up to adulthood, which calls for its recognition and appropriate attention for its possible implication in behavioural modification in adult life (Hazari, 1999).

Some parents believe that nocturnal enuresis is of different actiology which includes laziness, on the part of the child, a spell or curse on the child by the enemies of the family, excessive play during the day time. It could also be as a

result of curse on a female by her jilted male friend (Amos 2002). As the actiology varies, the management also vary with cultural set ups. In an attempt to manage or live with the problem, many of these children suffer psychological trauma through labelling.

Various management methods are adopted. Most of these methods include ridiculous unacceptable names, humiliation of various degrees, punishments of various kinds. For example, some compel the child to swallow unpalatable native concoctions pass urine on the tripod stand containing hot ash with the belief that the hot ash will burn the child, thereby waking the child up from deep sleep. These are embarrassing to the child's morale (Appooym 1997). Many, for the fear of embarrassments, keep the problem as secret while others unhappily report the instances expecting the child to outgrow the bedwetting habit. Unfortunately, some do carry it to adulthood. The problem then starts when, if eventually the child fails to outgrow the bedwetting habit, help usually comes very late. when the damage had been done (Goin 1998).

The enuretic child is subjected to psychological threats that linger for so long within the psychological makeup of the individual. Some of the methods adopted in the management of enuresis still exist probably contributing to maladjustive behaviour found in some adults. Bollard et al (1989) and Pugner (1997) Were of the opinion that when noctumal enuresis is mismanaged the child grows up with low self esteem, resulting in loss of self confidence and exhibition of

unassertive behaviour. The child cannot feel free to visit friends and relatives or peer group party, camps or sleep away overnight for the fear of bedwetting.

Consequently the child remains withdrawn even in boarding houses for the fear of being ridiculed. Also the child is depressed in the midst of his/her peers, especially those who had noticed him/her bed wet. Enuresis was observed to be an important source of family crisis and lack of self esteem (Riley, 1997). Bollard et al (1989) observed poor performance in class resulting into frequent change of environment like schools, friends, and later to unstable jobs, marriages and can sometimes degenerate into suicidal tendencies.

Moreover, the humiliation and difficulties encountered by the enuretic child, if not corrected at an early stage, can lead to a vicious cycle of difficulties with the parents, thus giving rise to chronic emotional tension, increasing naughtiness and other antisocial behaviour by the child .These can also result into rejection and despair by the parents or the child's immediate social environment. These rejections, disapproval and reactions have major implication for the young child especially when leaving home. The problem also leads to child abuse by parents or guardians, as both parents and the children find it difficult to tolerate the foul stench of stale urine. (Bollard et al, 1982; Wanger et al 1988).

Few studies exist in Nigeria on bedwetting at night. In Idikan, many children avoid discussing (NE) openly, some would not like to go to school after dancing to the enuresis songs. This study documented the extent of enuresis among

school-age children in Idikan area of Ibadan North West local government and highlighted its impact on the affected children and their families. It calls for the appreciation of the fact that enuresis is a serious problem that deserves widespread professional and public health attention.

Justification of the Study

Nocturnal enuresis is common in every culture but not perceived as a public health problem until adult age. This study was intended to stimulate families to acknowledge its importance for healthy development of the child. Delaying the treatment beyond age five to seven may be dangerous to the psychological stability of the child (Bower et al 1996 Gwen, 1998).

This study intends to provide the baseline information that will form the basis for appropriate intervention strategies. For the earlier the baseline study is done, the better for courctic management because "there is little to be lost and much to be gained by identifying and treating the problem early" (Bollard & Nettelbeck, 1982; Bower et al., 1996). This is a baseline study, first of its kind in Idikan. It is essential to document the extent of nocturnal enuresis among school age children and ascertain parental response for proper health education towards proper behavioural adjustment in life. The result of the study will increase the awareness of the public that enuresis is an important public health problem that can be prevented early. It will also present baseline data for formulation of appropriate methods that will enable the child sleep dry.

Research Questions

1. What proportion of children in Idikan community is still bedwetting after age 5?
2. What are the perceived causes of NE in Idikan?
3. What are the management methods of enuresis?
4. How does the enuretic child feel about the symptom?

General Objective

To document the extent of nocturnal enuresis among children from 5 to 12 years in Idikan. Ibadan North West Local Government Area with the view of developing intervention strategies.

Specific Objectives

The specific objectives which guided the study include the following:

1. To describe the demographic characteristics of the enuretic child (Gender, Class in school, position in the family).
2. To document the prevalence of nocturnal enuresis among children from the ages of five to twelve years.
3. To describe the burden of Nocturnal Enuresis.
4. To document the opinions of parents about the causes of enuresis.
5. To identify the strategies/methods employed by parents/caregivers in the management of enuresis.
6. To make recommendations based on the findings from the above objectives.

OPERATIONAL DEFINITIONS

Caregiver - That individual who renders or takes care of another person.

Children – Group of human young from infancy to puberty.

Community – A group of people living in the same locality, having a common interest or belonging to the same organisation (Bailliere Tindal 2002).

Diurnal **Enuresis** – Bed wetting during the daytime while the individual is not asleep.

Household - People who live together in one house.

Nocturnal Enuresis –involuntary bedwetting at night.

Primary Enuresis-(EN-you-REE-sis) is the medical term commonly used for bed-wetting in someone over age 5 that has never gone at least a year without wetting the bed at night.

Psychoanalysis – Method of treating mental illness by discussing with the affected person and arrive at the possible causes in the individual's past.

Psychopathology- Study of the causes and process of mental disorder. states of the mind that results that results into physical ill health.

Psychosomatic – Relate to illness having a psychological cause. It is the state of the mind which manifest in bodily symptoms.

Secondary enuresis- is bed-wetting in a child who had had bladder control

CHAPTER TWO

LITERATURE REVIEW

Nature of Enuresis

Nocturnal Enuresis is common among growing children. It becomes a source of concern to the family and distress to the children. Many researchers and mothers have come to accept that nocturnal enuresis is one of the most common problems encountered in paediatrics practice and care (Schulpen. 1997; Goin. 1998, Onigbodun 2004). During the toilet training process in the life of children, it is necessary to say that not all the children go through this period without occasional problems of bed wetting especially while they sleep. Some do have more bed wetting nights than others. Eliminative control ordinarily is accomplished in the sequence bowel-asleep, bowel-awake, bladder-awake, bladder-asleep (Stein & Susser. 1967). Initially, this behaviour attracts less attention. The anxiety increases as the frequency and persistence become more troublesome. (Stein & Susser, 1967).

It has been documented that by the age of three to five years most children achieve day and night continence. The children are dry by day earlier than dry by night (Serel et al., 2001). About the age of five, about ten to fifteen percent of the children still wet bed at night at least once in a week. Bed-wetting is the commonest but neglected developmental disorders. Day-time wetting called diurnal enuresis is less common. Encopresis and diurnal enuresis can be recognised when a child is between 2 and 3 years of age. The distinction between the two is that

nocturnal enuresis is more of a nuisance while diurnal enuresis may imply potentially serious neurological problem (Serel et al 2001)

The last age of bladder control in sleep appear to be particularly difficult to achieve for a significant minority of children from 4 to 5 years of age and above. Therefore bedwetting could be regarded as the most chronic and prevalent of all childhood disorders. In fact its incidence in children has been a cause for concern for centuries (Schulpen, 1997).

Epidemiology of Enuresis

Nocturnal enuresis was identified worthy of attention as far back as 1550 B.C. when it was described in the paediatric section of an ancient Greek volume (Glicklich, 1951). recorded that Thomas Phaer "the father of English Paediatrics", headed or titled a paragraph in one of his books 1544 called Boke of Children which he titled "Of Pyssying in the Bedde" Some speculations by prominent Psychoanalysts suggested that enuresis is a form of aggression against the significant others or the parents, or a depression expressed in "weeping" through the bladder. Also in support of this view, Lovibond, (1963) acknowledged its importance when enuresis was accorded recognition in an international conference in England.

Incidence

Many researchers are of the opinion that the worldwide incidence of nocturnal enuresis for children aged 4 years and above ranges between ten (10) to 33 percent (Lovibond, 1963; Oppel et al., 1968; DeJonge, 1973; Cooper, 1974). Some of their statistical surveys indicated that the actual probability of a child becoming dry in any twelve-month period for any age beyond 4 years is not more than 1:4 (Lovibond, 1972). While DeJonge (1973) is of the opinion that it could be as low as 1:7 even when the child achieves bladder control, the probability that he or she will relapse can be as high as 1:4 (Oppel et al., 1968). For every child with day time wetting, there were six (6) who wet at night. Enuresis affects some 20% of children at age 5, 5 percent at age 10, and up to 2 percent at age 15 years. But about 1 percent of adults, wet the bed since childhood (Bollard & Nettelbeck, 1982).

Incidence of bed wetting expressed in percentages at different ages point at arithmetic means estimated from the summary published data by (DeJonge, 1973).that in Western European and North American cultures, about 7% of children actually achieve complete nocturnal continence by their first birth day (Verhulst et al., 1985b). The incidence of which drops drastically over the next two (2) years which implies that by the third year 50-70% of the children can control their bladder at night. The graph maintains the decline trend that by the fifth year the number has reduced to 10-15%, by ten years old reduced to 5-6% and 2-3% for teenagers while 1% of the case continues throughout aduh age.

They also went further to say that the incidence of bedwetting is consistently higher in males than females at the ratio of 3:2 cutting across different countries at their different levels of economic development (Screl et al., 2001). But opinion had it that enuresis is as much as three times more common in boys than girls, probably, due to boys' slower rate of maturation, (Bollard et al 1982). Some researchers believed that boys are not normally dry at night until age 8. It is necessary to realize that those who wet bed regularly were above ages 7-10 years. It may seem unpronounced at first glance to the graph, though the actual number of cases could be considerably high (Bollard et al 1982)

Prevalence

It is said that about 3 million Americans are enuretic between the ages of three and half (3 ½) and seventeen (17) years. It was estimated that about 750,000 children over the age of seven (7) suffer from bed wetting in great Britain (Butler et al., 2005). Obodigbo & Nweke, (1998) found that one out of every four students studied did not attain bladder control by age four. Also Petrican & Sawan, (1998) are of the opinion that 20% of the children over four years are enuretic though the figure decreased by 15% each year that by the age of 18 years only 1% of those children remained enuretic.

Studies have shown that by age five (5), about 1 to 2 cases of bed-wetting were mainly primary enuresis, while those who eventually regressed to secondary enuresis did so following some psychological conflicts (Douglas, 1970). In Benin

City, enuresis appeared most in children aged between 9-12 years and it was found more among children born in the high socio-economic class (Obi, 1977). The opinion that stress appeared to have played a major role in the causation of enuresis, (Obi, 1977), Bakare (1987) observed that secondary enuresis responded better to imipramine treatment than the primary enuresis.

Diagnosis

The American Psychiatric Association (1994) gave these specific criteria for enurctic diagnosis:

1. Repeated involuntary voiding of urine by day or night into the beds or cloths
2. At least two such events occurring per month per child between the ages of five and six (5-6) years or at least one episode per month for older children
3. Also the disorder occurring without any physical disorder such as diabetes or seizure disorders.

Aetiology of Nocturnal Enuresis

Physical Causes

Physical causes are rare, so many of the enuretic children show no evidence of demonstrable physical abnormality. Though in some, it can be associated with small bladder capacity (Rasmussen et al., 1997).

There are many theories used to explain the aetiology of enuresis. Those that are frequently referred to relate the cause of enuresis to psychological disturbances

in the child and emotional conflicts involving the child's home environment especially when the conflict is present or occurs too early in the life of the child (Duvall, 1954). Also injurious to the emotion of the child is the vigorous attempt at toilet training, hostile mother-child relationship and unstable home environment. For proper diagnostic purpose, any unusual thirst and bed wetting in a previously toilet trained young child should arouse curiosity or cause concern to parents.

Organic Causes of Enuresis

The organic causes of (NE) are rarely found. While maturational, environmental and hereditary mechanisms are implicated, they are associated with personal, societal concerns and toilet training procedures. For the effectiveness of the very many behavioural conditioning, biochemical and surgical interventions testify to the complex nature of enuresis, (Nowak & Weider, 1998). The presence of enuretic symptom supports the unique clinical assessment procedures, which are not generally found being used for other functional disorders. Therefore, the modern behavioural and medical sciences, and the rich century old attention given to soiling, raised hope for increased freedom from the problem of bed wetting (Collins et al., 1980). The precise cause of bed wetting is really unknown. It is multi-factorial. In most cases, it appears to be due to delayed physical development. In others, their bladder capacity appear to be less than half of what is regarded as normal for the age of the child (Collins et al., 1980; Rasmussen et al., 1997; Yakinci et al., 1997; Barthold et al., 1999).

A frequent cause of bed wetting is constipation. Treatment of constipation in enuretic children often resolves the bed wetting problem (O'Regan et al., 1986). He explained that in some chronically constipated children, the rectum is probably never empty thus the rectal sphincter muscle remains contracted to hold back faeces. Consequently, this results in the dilatation of the rectum, which presses on the small but immature bladder to cause the enuresis.

Several factors have been suggested to be implicated in the causes of nocturnal enuresis, in many instances, no clear cause can be found. It is common among pre school age children, when it is not considered to call for concern. But by school age, it becomes much less prevalent of which developmental delay may underlie many enuretic cases of this nature. Organic origin of enuresis was linked with about 5% of the total enuretic children (Bollard & Nettelbeck, 1982). They sighted the example of even the population of those who had associated urinary tract infection, the incidence was not high.

Enuresis may be as a result of polyuria due to diabetes mellitus or insipidus, seizure disorders, defects in the renal tubules. In diurnal enuresis, there is possibility of the presence of organic disease being high (Goin, 1998). Also it was observed that even when the urinary tract infection is treated, it does not cure the problem of enuresis. Therefore, the hypothesis that suggested that disease condition is contributory to bed wetting may not be accepted. This does not suggest that the incidence should not be medically examined and the cause organically ruled out before embarking on treatment. This is because spinal Bifida and Adnoid

obstruction have been implicated in many researches (Rittig et al., 1989). Some authors like Lunsing et al.,(1991) suggested that biochemical deficit in the child could be one of the reasons for enuresis. Others like Bollard et al (1989) and Kalo (1996) observed that parents who had been managed for nocturnal enuresis tolerate their enuretic children better with the tendency for the disorder to recur among the children whose parents bed wetted in the past.

Genetic Factor

Abe et al (1993) agreed that genetic factors seem to play a part in at least some cases by obtaining history of bed wetting from parents and older siblings. Also "approximately 75% of all children with enuresis have a first degree biological relative who had the disorder"(Lunsing et al., 1991). According to the American Psychiatric Association (1994) approximately 80% of their enuretic subjects had family history of nocturnal enuresis. Also monozygotic twins study consistently show support to the genetic relationship than dizygotic twins study (Abe & Oda, 1991).

Several studies point to a genetic link in enuresis especially when both parents had the problem in childhood. Elder, (2000) in a study observed that the figure dropped to 44% when one parent had enuresis in childhood. There was a significant difference when neither of the parents had bed wetting problem, and wrote that only 15 percents of the children had enuresis. Chromosome 12 and 13

were identified as the carrier of the genes responsible for nocturnal enuresis (Elder, 2000).

The exact causes of chronic bed wetting in older children are not fully understood although family history appears to be important, and factors that affect the maturation of the brain-bladder connection are also implicated. Though some other researchers suggest that low birth weight and developmental delay may be involved in the causes of enuresis, (Bollard et at, 1982).

In an effort to accept the genetic factor influence and gender differences on the incidence of enuresis, Cederblade (1968) maintained that the development of urinary continence depends largely on adequate maturation. In addition, observed increased prevalence of bedwetting among the boys, reported a higher incidence in males than females as far back as the age bracket of five to eleven with remarkable decline in bed-wetting among the girls. This is supported by the findings of Goin et al (1998) which observed a higher incidence of childhood enuresis among the parents, siblings, and other near relatives of the enuretic children. Hjalmask (1997) related the frequency in other family members to be directly to the closeness of the genetic relationship.

Thus in an attempt to treat the problem, it is essential to really take adequate history for better understanding of the remote cause of the problem and the choice of the appropriate mode of treatment (Bollard & Nettelbeck, 1982; Warzak, 1993).

Biological Factors

Biochemical deficiencies have been suspected by researchers like Rittig et al. (1989) and Lunsing et al, (1991) as the cause of enuresis. They observed the decrease in the level of Anti-diuretic Hormones (ADH) Vasopressin in their clients. Others like Kirk et al.,(1996), suggested the possibility of central nervous system of enuretic children being difficult to stimulate especially during sleep. That it seems their bodies do not "Hear" or are not aroused by the biological alarm clock that sends the message to the brain that it is time to wake up and go to the toilet (Hjalmas, 1997) and (Kawauchi et al., 1998).In biological deficiencies, the enuretic children may respond to drug treatment (Podnar et al., 1999).

Immaturity in function of the Thalamus could be the cause of this arousal dysfunction in patients with type I (primary) enuresis while those with type II (secondary) enuresis, a possible arousal mechanism in the Pons varoli may be responsible (Kawauchi et al., 1998).

Deep Sleep

One additional factor in many cases of enuresis is the subject of children for whom very deep sleep is an important component of their nocturnal enuresis which usually occur in the first three hours in the night. It is common to hear parents say that the child is a deep sleeper, hence the belief that bedwetting is as a result of the child's inability to wake up from deep sleep, (Bollard & Nettelbeck, 1982; Chandra, 1998; Kawauchi et al., 1998) and concluded that it could be as a result of

immaturity in the functions of the thalamus and pons veroli which could be responsible for arousal dysfunction in these children.

Many authors agreed that there were significant difference in the arousability with the enuretic group of children between ages 6-10 years old (Yeung, 1997; Neveus et al., 1999). There appears to be an association between deep sleep and enuresis, the defect of the musculature within the bladder and abnormality of the neurological pathways that are involved in the bladder control. It represents a learning or habit deficiency thus giving rise to faulty habits as a result of lack of motivation on the part of the child, and inappropriate training by the parents. (Bollard & Nettelbeck, 1982; Kalo & Bella, 1996).

Breast Feeding

Some researchers speculated that there are evidences that breast fed babies are less likely to have persistent enuresis as children (Kalo & Bella, 1996; Butler et al., 2004). Thus baby friendly initiative should be encouraged.

Sex Differences

Many scientists agreed unanimously that nocturnal enuresis is more prevalent and prolonged among boys than girls (Verhulst et al., 1985a; Lunsing et al., 1991; Seiel et al., 1997). Though, the reason is yet to be substantiated, they accepted the fact that enuresis is clearly linked with developmental maturity. Perhaps females experience fewer problems in this area for they averagely mature faster than the

males while the males have more aggressive tendencies at younger age (Lunsing et al., 1991).

Personality

Personality is not formed by rearing practice in the family only, but by a number of many other experiences, which are unique or peculiar to the individual. Some are derived from experiences one had been exposed to outside the family. Personality is shaped by events that occurred during childhood (Latham, 1998; Paris, 1998).

Early learning has a stronger impact than later learning. The earlier the onset of the traumatic experience the worse the severity of the psychopathology. When abused children feel stigmatized, self esteem decreases and the outcome is worse. But the support from the social network makes children much less likely to be negatively affected (Paris, 1998). For being beaten in childhood leads to violent behaviour in adult.

Children with different personality trait experience family life very differently. Parental separation during childhood and the quality of family life before the separation, the availability of non-custodial parents after the separation, coupled with decrease in financial resources, changes of domicile, continued conflict between parents and depression in the custodial parent offer another explanation to personality trait affecting the enuretic child (Bollard & Nettelbeck, 1982).

Researchers suggest that the prevalence of enuresis could be higher amongst children from socially deprived background or where there is evidence of family discord. Specifically, Levena (1991), Cohen et al (1995) and Apooym (1997) supported the idea that enuresis could sometimes be an indication that the child is under psychological stress as experienced in un-conducive environmental influence, seen in large families and institutional up bringing. Social deprivation and stressful life events may exert their effect by modifying normal continence or toilet habits in the child. A sense of isolation creeps in at the young adult age when, because of bed wetting behaviour, he cannot enter wholly into an intimate relationship for fear of loosing his identity (Erickson 1963). Cohen et al (1995) identified the powerful effect of loneliness on the development of oneself system.

Stress Factors

Anxiety or stress is another important factor associated with enuresis. Researchers actually looked beyond the child into the families of the enuretic children to detect probable remote cause of the problem. One team of researchers found out that their enuretic subjects had more of those whose parents were divorced or separated than non enuretic children (Moilanen et al, 1987).

Obi (1977, 1987) and Goin et al (1998) in two separate studies observed young boys developed secondary nocturnal enuresis after their mother's men friends moved in to live with them. One of the subjects indicated that he had never

been exposed to living with a male "Father figure". The second had previously witnessed his patents go through the process and trauma of divorce.

Mothers suffer the burden of caring for the children after divorce as they are usually given the custody of children in this situation. The absence of normal family life and absence of the father impact release hard blow on the little boys than on little girls. These researchers believe that this accounts for the increase in enuresis in boys than girls (Obi 1977 and Goin et ol 1998).

Toilet Training

Attempt to hurry toilet training may be counter productive and actually contribute to bed-wetting. For this reason, experts advised letting the child develop bladder control at his or her own pace (Fergusson et al., 1986; Butler et al., 2001). Trying to force children to urinate can push them into a wrong patiem. This is because the young "children aren't clear on what to do so they tighten the wrong muscles". Therefore, suggested letting children decide on their own when they want to be potty-trained. Though, the fundamental effect is the saine. They are of the opinion that as the child gets into this mode of holding back, instead of learning to relax and empty the bladder completely at regular intervals, they tighten the wrong muscles.

During the period of toilet training, there will surely be a period of accidental bed wetting especially while the child sleeps, though many have more of these "accidents" than others. Premature potty or toilet training is one of the

suggested causes of enuresis when it coincides with developmental immaturity. If parents push their young ones too early to urinate frequently throughout the day, it will only control the rate of urination. This hinders the child from the opportunity of learning the signals of bladder distension. These parents are not likely going to adhere to the protocols suggested by the behavioural enuretic therapists, thereby prolonging the problem of the child. Therefore, Butler et al (1988), Hussing and Revs (1991) suggested that delayed maturation of the nervous control could be an important factor.

Enuresis has been associated with some predisposing factors like the inability of caregivers or parents to initiate toilet training at the right time, place or methods; poor recognition of any existing psychosocial stress; a dysfunction in the ability to concentrate urine and a lower bladder volume threshold for voluntary voiding of urine as the child grows, the prevalence falls as the age of the child increases. For at age 5, it is as high as 7% in boys, 3% in girls and by age 10 the prevalence in boys fall to 3% while in girls 2%. By 18 years it reduces to 1% in males and less in females. The 1% is a source of concern to both parents and the child (Marlow, 1977). "Sometimes parents may be bothered by the child's enuretic behaviour but may not realize the basic problem involved. Parents are too close to see the situation that they fail to see what is really happening. Because the enuresis is upsetting, they fail to notice the manifestation of the child's development", (Marlow, 1977).

Concepts of Teachable Moment

Duval et al, (1994) identified that "the child who is loved and knows it, has the inner security needed to keep working on his developmental tasks". Some workers have identified this teachable moments as that time when the body is ripe; the child is ready striving for some achievement and the culture is pressing for it (Duval et al., 1994). It is at this point that the accomplishment might end up as fruitless efforts if care is not taken.

Scientists have tried to search repeatedly for a single cause of nocturnal enuresis and ended up in identifying several possible causes. In some, there seem to be a factor that play a primary role, while some others confound it; in others, there exist multiple contributory factors. There is high incidence of being dry at night between the ages of one to four, unlike below this age (Goin, 1998). This suggests the possibility of the mechanism responsible for bladder control maturing during this period. This is the age regarded as an optimal period that does not depend upon learning or toilet training, during which dryness is destined to occur. Though, this night be interrupted when there is interference and unrealistic restrictive toilet training. By three years of age most children would have learnt to tense or tighten their perineal muscles in the crutch. In rising the neck of the bladder, the internal sphincter is tightened such that the urine in a full bladder can be retained till convenient time and place as the maturation of the parasympathetic nervous system is gradually achieved (Bollard, 1982; Barthold et al., 1999; Elder, 2000).

Pathophysiology

Sometimes between the ages 1and 2, a toddler first senses bladder fullness and then starts to hold back urine by contracting the sphincter muscles of the urethra. As the bladder stretches out to hold more urine, the inner pressure increases and cause the bladder's powerful detrusor muscles to contract to expel its contents. By so doing, they can retain urine and relax the urethral sphincter during detrusor contractions thus they can pass urine at will.

Daytime dryness usually comes first before night time dryness. Though certain children, however, get stuck in this transition with a condition known as dysfunctional voiding. Some find it difficult to coordinate the intricate mechanisms in the urinary muscles. Others learn the act of coordination but persist in holding back urine to the extent that the bladder greatly over stretches. Therefore, in both extreme cases, the consequence is that the urine becomes stagnant and infected (Stein and Susser 1967).

The dysfunctional voiding reflects neither disease nor physical defects rather, a hitch in the child's method in his initial efforts at bladder control. Fortunately, with early detection and muscle retraining, dysfunctional voiding is in most cases cured. If neglected and is allowed to continue, this abnormal wetting problem can lead to a permanent damage to the urinary tract, even degenerate to kidney failure or to death (Bollard 1982).

Figure 1:

Components of the Urinary System

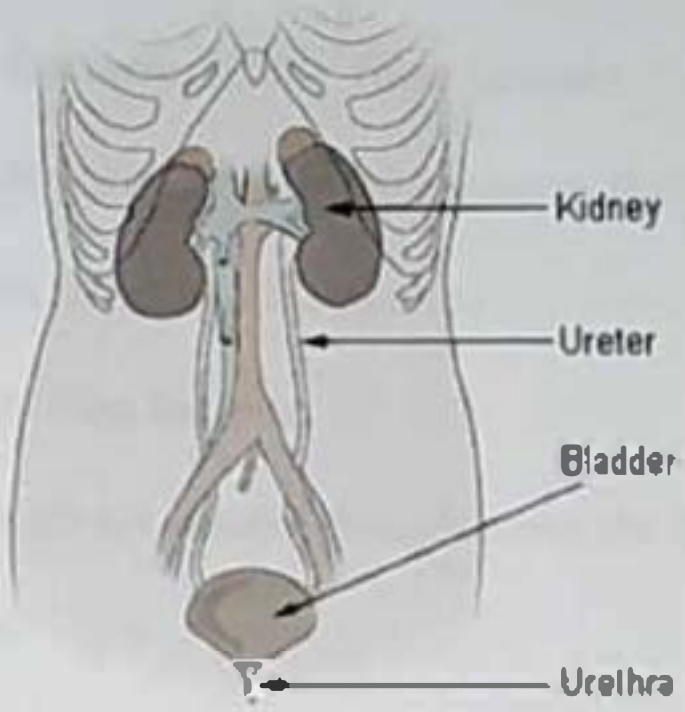
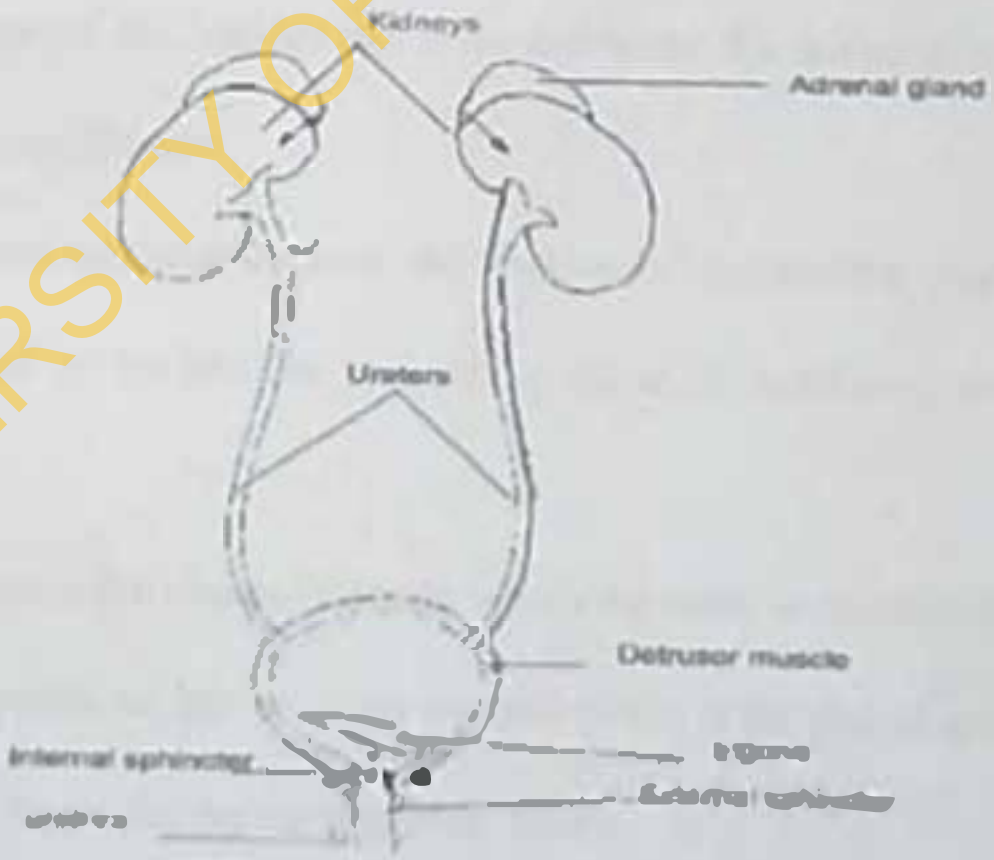


Figure 2: The Act of Micturition

THE URINARY SYSTEM



ACT OF MICTURITION

Many organs are responsible for bringing about the smooth act of urination. (Ross and Wilson 1982, Behrman, 2000). These include:

1. The Adrenal glands produce the hormones that affect the fluid control in the body system (Adrenocorticosterone).
2. The kidneys filter the urine.
3. The ureters are the channel through which the filtered urine is transported to the bladder.
4. The bladder serves as the reservoir, which temporarily stores the urine until it is evacuated.
5. The detrusor muscle in the bladder contracts to squeeze out the urine or relaxes to accommodate the volume of urine.
6. The trigone of the bladder add body and helps the sphincteric structures to maintain equilibrium.
7. The internal sphincter between the bladder and the urethra controls the urine at the neck of the bladder by keeping the urine until convenient time and place.
8. The urethra is the channel through which the urine is passed out.
9. External sphincter lets the urine out and closes at the end of urination.
10. Nerve supply is the parasympathetic nerve.

Pathophysiology in urinary elimination and bladder control

As the child gradually grows, scientists argued that by the year three to four most children should have learnt the ability to start the urine flow consciously from a full bladder, by pushing down the thoracic wall as he/she tightens the abdominal muscles. From this age, most children have achieved the ability to stop the urinary stream at will. It is assumed that for the child to learn the achievement of continence at night, the child has to learn to transfer the inhibitory control of urination to the locations in the brain and develop the capacity to detect detrusor muscle contraction and inhibition of sphincter relaxation when the bladder capacity is achieved. By so doing, urine is retained throughout the hours of sleep and in the period of excessive bladder tension, the child wakes up (Bollard et al., 1982).

Though this does not go without some experiencing occasional "accidents" (Goin, 1998). This is due to the increasing volume of fluid storable in the bladder, which induces or stimulates evacuating contractions to occur. During sleep, as the pressure mounts and exceeds the bladder's limits of compensatory adjustment in the muscles and the feedback stimulation from that pressure pressing on the filling bladder, wakes the child up before the reflex triggers off urination (Bollard & Nettelbeck, 1981; Goin, 1998).

Physical Immaturity

A delay in the maturation of the brain-bladder connection may underlie problem of bed-wetting in some children (Bhatia et al., 1991). He emphasized that if such a delay occurs, it should not be regarded as a "major developmental problem" rather, it might be that in some children who persistently wet the bed at night, the pathways between the brain and bladder are not yet fully matured.

In a study, using school age children with chronic primary nocturnal enuresis, Bhatia et al.(1991) came up with a standard drawing test designed to measure neurological development of the child. He considered the children's response to treatment using artificial form of vasopressin, which is a hormone released by the brain's pituitary gland that normally decrease urine output.

Some research had shown that chronic enuresis might be as a result of the child's inability or failure to have the nightly increase of the vasopressin. Therefore the synthetic form called Desmopressin is sometimes used in the treatment of enuresis (Bakare 1987). Amongst the 34 children studied.Hjalmas (1997), utilized a standard drawing task. Those that did not respond to desmopressin made more errors on the standard drawing tasks. It was observed that the child who made three or more errors was helped by the hormone treatment. Therefore, he suggested that the children who made errors on the test have more than simply a failure to produce vasopressin at night probably the child's neurological pathways between the brain and bladder are not fully matuie (Hjalmas, 1997).

Researchers like Bhatia et al., (1991); Bacyens et al., (2005) noted increased risk of bedwetting among those children showing delayed intellectual development. The (EEG) electroencephalogram record of persistent bed wetters have been found to contain diffuse abnormalities, which have sometimes been interpreted as indicating some kind of immaturity of cortical development in the affected children. Coincidentally, some authors observed a normal EEG report on those bed wetters who have just achieved spontaneous establishment of bladder control (Christiani et al., 1977; Podnar et al., 1999).

Emotional immaturity

Bollard et al (1982) are also of the opinion that the enuretic children show evidence of emotional immaturity when compared with non-enuretic children which is regarded as evidence of maturational delay. However, the evidence for such emotional immaturity is problematic in the children. It was also observed that the majority of enuretic children seem to be a little different from non-enuretic children in terms of social and emotional adjustments. Oppel et al (1968) believed that there is no relationship between a delay in the bladder control and other developmental disorders. Crimmins et al (2003) on the other hand, is of the opinion that there is a clear relationship between delay in acquiring urinary continence and other forms of developmental disorders like somatic immaturity and encopresis.

Kawauchi et al (1998), emphasized that beyond age five, immaturity is no longer regarded as responsible for persistent enuresis in majority of their subjects

but delayed maturation is an important contributory factor. Their findings did not give enough evidence to explain it in all cases of slower maturation. Bollard et al (1982) observed that some children, who do not initially advance from incontinence during infancy to consistent dryness in childhood, do have occasional dry nights and even sustained dry nights for long successive night. This suggests that the more successive dry nights achieved, the truth is likely to be that the appropriate maturation has taken place in the central nervous system responsible for bladder control. Bollard et al (1982) observed that five years old children, who have not yet achieved complete bladder control, sometimes still experience period of dryness. Also in his attempt to disprove the fact that late maturation is predominantly responsible for enuresis, he suggested that changing the enuretic child's environment can result in his achieving temporary control over bedwetting. Many mothers also supported this Bollard's view. It was observed that some students were frequently dry on nights spent in the sick bay but resumed bedwetting when they returned to their usual dormitories. Some resume bedwetting immediately they come back from holiday. Therefore, Azrin et al (1974), Arajarvi et al (1977) were of the opinion that the high rate of rapid success achieved with treatment using alarm device among nocturnal enuretic children aged seven and above, strongly suggests that maturation of central nervous system mechanism had already occurred in the majority of such children.

Bladder Immaturity and Capacity

It is generally believed that delayed maturation of nervous control is another important factor. Some studies also included direct measures of the functional bladder capacity of the child, (Bollard & Nettelbeck, 1982 and Petrican et al, 1998). This involved the storage of urine for a reasonable length of time without voiding, showing the volume of urine retained in the bladder for a specific duration, rather than the actual structural size of the bladder. This was achieved by involving the child in daily urine collection and recording the volume for about one week. In an attempt to estimate the "Hold pattern", the total volume of daily urine calculated and the mean outcome, provides estimated functional bladder capacity. Evidence from this test, reveals that average enuretic children have smaller functional bladder capacity than non-enuretic children of the same age. Thus, providing the considerable support that suggests that nocturnal enuresis is as a result of underdeveloped functional bladder capacity (Kawauchi et al, 1998).

The underlying mechanisms for this, researchers believed, are not well understood. It is suggested that since the child is still going through developmental delay, the quantity of fluid he/she is able to retain is too small to act as adequate stimulant for the development of a response inhibiting urination. Without this inhibition of urination, frequent passage of urine is inevitable, in response to only a small volume of urine accumulating in the bladder.

Therefore, there seems to be associations between lower functional bladder capacity and enuresis but it is difficult to ascertain the capacity that is adequate for the control of urination. Frequent voiding during the daytime does provide index for measuring day time functional bladder capacity. This is, not a reliable index for measuring night time functional bladder capacity, as the child who passes urine frequently during the day, may not often be dry at night. Thus "Retention Control Training" (RCT) can therefore be adopted to enable the bladder adjust. It is necessary to know the importance of bladder maturity to the development of nocturnal continence as underdeveloped functional bladder capacity may be involved in many cases of bedwetting (Riley, 1997; Kawauchi et al., 1998; Petrican & Sawan, 1998).

Environmental Factors

Dimitriou et al., (1976) and Selig (1982) are of the opinion that living within a disturbed, conflictual, overprotective, abusive environment, parental absence and the use of negative reinforcement; increase one's chance of developing enuresis. Previous studies also show that those who were most affected by these negative attitudes, experienced nocturnal enuresis. Thus, any major life style disruption seen as a source of stress, is capable of triggering off enuretic episode (Omigbodun, 2004).

In rare cases, emotionally disturbed children may respond to their illness with loss of bladder and bowel control (Butler, 2001). Some workers believe that other contributing factors include hospitalization especially between the age 2 and

4 years. arrival of a new baby, entering new school, loss of a dear one even pets, surgical interventions as in adenoidectomy and air way obstruction secondary to cleft palate repair (Nowak & Weider. 1998).Low arousal threshold is one of the pathological factors underlying nocturnal enuresis (Nevcus, 2003).

Environmental causes may play a part and there is an association between enuresis and emotional disorder, especially in cases of secondary enuresis. The term secondary enuresis implies that there had been a period of about more than six months of dryness. It is often aggravated by psychosocial stress and infections (Goin, 1998). This was suggested in the stress model (diathesis) that the disorder often appears to develop, following a particular disturbing environmental event. Many psychological disorders result from the impact of environmental event (the stressor) on a person who has a predisposing vulnerability (Bollard et al 1989).

The vulnerability could be affected by various factors which include the individual's genetic make up, biological history, history of injury, infection, various aspects of personal history which include those traumatic experiences in childhood. But Young (1997) believes that a child's relative powerlessness can lead to a lasting sense of inferiority, which may distort relationships with other people. Also a sense of inferiority in a child can lead to callous self-centeredness, bullying and withdrawal from social relationships (Moffatt, 1997, Rona et al., 1997).

Child analyst like Erikson (1963) in developmental stages from infancy through to old age, maintained that individuals face desperate developmental tasks at different stages of life and that ego development could take place at these stages.

He also emphasized that psychological difficulties might arise when healthy ego development is hindered or blocked by social constraints or psychological obstructions. Thus, social ostracism at this tender age can be counter productive. The important thing to the therapist here is to help the child to acquire basic trust and confidence. Therefore, in facilitating optimum growth and development of the enuretic child, emphasis is on the importance of a healthy relationship between the enuretic child and significant others.

However mal-adaptation or hostile aggression results when aggression becomes destructive. When the hostility is in the home because of bedwetting, the child is ill prepared to face more stressful things in the larger community as he grows. It is believed that the baby who experienced warmth in his/her nurturing and care, during the early periods of his/her developmental difficulties, develops a sense of well being and trust for future relationship (Erikson, 1963). Between three and six years the small child learns how to socialize within his little circle of family and friends. When the child is deprived of this skill, because of the problem of bedwetting, the child is ill-prepared to meet the demands of larger society as experienced in the classroom, with the peer group and in his/her early contact with the community.

Family System

Abnormal behavioural patterns frequently occur in children exposed to domestic insecurity and disharmony at home. Frequent exposure to domestic argument

between parents and violence at home may lead to sleep disorders, bedwetting, and a range of socially unacceptable attention seeking behaviours (Lathain. 1998).

Cohen, (1975) and Allen & Bright, (1977) associated enuresis to broken home, alcoholism, child abuse, and other stressful events in the family system. It equally occurs in stable homes too. Cohen, (1975) observed that some children hold back their urine all day because they have decided within them not to use the school toilet because the toilet is either dirty or the children were very hyperactive, preoccupied and had no time to go to toilet. Some actually feared the potty because they have fallen into it, while others expressed fear due to number of maggots found in the school toilet (Crimmins et al 2003).

The family system model suggests that most problems which present in terms of individual's psychopathology/psychosomatic disorders are usually manifestations of family disturbances. Each family is seen as a unique social system in which any alteration is bound to affect every element within the system. Changes reverberate through the family system so that it is often impossible to understand family processes in terms of simple cause and effect associations (Duvall 1954, Cohen 1975, Bollard et al 1989).

Hence, in its reciprocal relationship, the family system has a natural capacity of reducing immediate tensions (Schulpen, 1997). In some cases, when a member of the family develops behaviours like wetting bed at night persistently, it could be a way of reducing a fundamental instability in the family system. Therefore, the

child's psychosomatic aches and pains, excessive unruliness including enuresis may serve as a mutual source of concern for parents whose relationships are not cordial (Schulpen, 1997). The child's symptoms sometimes serve as means of drawing attention to curb parental conflict, thereby maintaining a positive family relationship. The systemic pressures might compel the child to remain unwell, unruly or enuretic (Cohen, 1975). However, Yeung (1997) emphasized that nocturnal enuresis was found to be associated with a positive family history and poor relationship with school classmates.

For useful intervention to take place, adequate history taking, that focus on the family set up, school performance and personal interaction, is necessary to identify maladaptive behaviours and to help the family to more adaptive ways of functioning (Butler et al 1986).

Parental Perceptions

Nocturnal enuresis is really a frustrating problem for parents, especially mothers, who are not only responsible for the cleaning up after each episode, but are also saddled with the problem of finding appropriate solution to their children's problems. Most of the time, the focus is on the mothers with little, if any, input from fathers. This is because in most families, mothers are regarded as the primary caretakers and homemakers, thereby making them largely responsible for dealing with this type of situation. (Garber, 1996; Pugner & Holmes, 1997; Schulpen, 1997).

Butler et al (1986) in their study, suggested that those mothers who attributed children's bedwetting behaviour to reasons that are beyond the child's control, like being heavy sleepers, are more concerned with the emotional impact of the problem on the child and his social relationship. The mother who is tagged "intolerant mother" often views the behaviour as laziness on the side of the child. She attributes enuresis to the factors that are within the child's control. Unfortunately, these sets of mothers are more likely to prematurely withdraw their children from treatment, and easily give up. Therefore parents especially mothers, that show negative attitudes towards their children's bedwetting behaviours, could benefit from both additional education that regards enuresis as a disorder that needs increased understanding and support from other members of their family (Butler et al., 1986; Butler et al., 1998; Evans et al., 1998).

Single Parenting

In some cases, children living in a single parent situation are more likely to wet bed than those living with both parents. The parent most of the time, the mother, is usually compelled by the circumstances facing her to work full-time. She is likely to be exhausted and fatigued at the end of the day. As a result, she will not be able to give her best during the night or spend weekend with the child. The child in turn misses her presence as he/she spends long hours with surrogate mothers or caregivers in crèche. Consequently, the child misses the "mother touch". For this, the child demands maximum attention during the few hours the mother is around

which could be resented by the mother. Also, social contact by the single parent with the members of the opposite sex may be rejected by the child for which he/she manifests the unacceptable behaviour like bedwetting (Butler et al 1986).

Resistance to toilet training is one of the seven most important potential problem areas for the child living in a high risk family, this neglected behaviour can cause severe tension and even start off physical abuse. Garber (1996) identified simple ways in which these problems can be pre-empted and dealt with.He summarized early identification of the cases as proper evaluation of the condition, good history taking, provision of privacy and appropriate management.

Theories Related to Enuresis

Many theories will be utilized to enhance the understanding of behaviour, cause and effect of actions. Therefore, psychoanalytic, behavioural, cognitive, socio-cultural, general system, existential-humanistic, stress, medical and biological models will be referred to most of the time.

The problem of nocturnal enuresis in childhood has been documented since ancient times. Many authors tried to give many different explanntions about the nature and cause of nocturnal enuresis. Different recommendations towards the treatment of enuresis were also suggested. However, the theoretical interpretations are placed in three categories;

1. Psychodynamic theories, which are of the opinion that the psychotherapy should be adopted.

2. Physiological theories adopted some form of medical intervention.

3. Behavioural theories and treatment.

(i) **Psychodynamic Theories**

This theory believes that enuresis is just an outward manifestation of some underlying state of emotional tension or instability, or, as a result of repressed sexual drive as expressed in repressed oedipal complex. Where this feeling is not allowed to be expressed, the child reacts by wetting the bed.

Other psychodynamic theorists characterized enuresis as a consequence of unresolved conflict, for example, between the child and the parents or the significant others. This theory is more reliable since it can be subjected to test and investigation. It was predicted that a substantially high degree of anxiety and emotional maladjustment could be found among good number of enuretic children compared with those that are non-enuretic, based on age, intelligent quotient, educational level, socio economic status and other variables that have been found to be associated with the incidence of enuresis. Some of these theories have been proved to have some degrees of association between enuresis and evidence for emotional or behavioural disorder (Shaffer. 1973).

This general finding is contrary to the usual behavioural position which, on its own, rejects an association between enuresis and psychological disturbances. The problem with this theory is that it is exclusively difficult to evaluate emotional

health in children and the response given by mother or other caregivers are sometimes unrealistic (Bollard and Nettlebeck 1989).

The general population survey by some researchers found higher incidence of enuresis among children who had psychological disorders like neurotic and conduct disorders. It emphasized that most enuretic children are actually well adjusted and free from other problems affecting their behaviour. The majority of the enuretic children have not displayed any significant psycho disorder different from non enuretic children. (Rutter & Hersov, 1985).

Many researchers' like- Lovibond, (1963); Collins, (1973) found no association between bedwetting and several measures of stress due to social, emotional or health problems. Although, using 3 year old in this study, the effect of stress variables might be more obvious at later ages; they failed to find clear support from the psychodynamic point of view.

Psychological disorders are sometimes followed by either or both night and day-time enuresis. The majority of the enuretic children do not exhibit other behavioural difficulties apart from wetting the bed. In some cases, it could be said that enuresis seem to be linked to traumatic circumstances in the early childhood. Thus, it might be important to link both the enuresis and the previous stress experienced by the child. It could be an indirect response to that specific stressful environmental circumstances, like the loss of a parent, sudden separation from the mother, inadequate care, stress at home and school (Cohen et al, 1967; Schaeffer 1979; Yeung 1997).

However, even when an enuretic child shows signs of emotional disturbance, it is not necessarily the main architect of enuresis, rather it is the consequence of the enuresis itself. (Bollard & Nettelbeck, 1981). Lovibond, (1963) is of the opinion that persistent enuresis can result in important limitations which could up set the chid's social life. For instance, some feel very bad when they cannot stay overnight at a friend's place for the fear of having embarrassing episode resulting into a virtual pariah status for a school age child. Showing stresses for emotional disturbance precede the onset of enuresis (Marlow,1977, Schaefer 1979). Some times, parents may be bothered by the Child's enuretic behaviour, but imny not realize the basic problem involved. The parents are too close to see what is really happening, because the symptom is upsetting, the parents fail to notice the manifestation of the child's development.

Therefore, the untreated emotional disturbance is the real problem. To treat the symptom, (bed wetting), is not the solution without taking into consideration the emotional disturbance that is the main root of the problem. Some psychoanalytic theorists have insisted that it can be dangerous to eliminate enuresis directly, since the underlying anxieties may be worsened by this attempt.

Lovibond (1964) in Bollard (1981) supported that prolonged enuresis may actually result to psychological disturbance. This is in agreement with Shaffer (1973) who believed that when the elimination of the nocturnal enuresis following direct treatment fails, it is an indication that parents have not reported additional

symptoms of instability that accompany attempted failure (Collins. 1973 Pugner et al 1997, and Sellinger 1997).

The psycho-dynamic point of view is that some form of psychotherapy should be applied in the treatment of enuresis. This is the only way one can understand the fundamental cause of emotional disorder, which is believed to be the cause of enuresis .There are many psycho-dynamic perspectives towards therapeutic frame work for enuresis. Hence, many kinds of psychotherapy could be used when treating enuresis. Verbal counselling and psychological support measures are useful alternative procedure. In all, it is believed that the enuretic child and the parents should thoroughly explore previous relevant life experiences with the experienced thempists. This will enable them understand the nature of the underlying anxiety and pave way for overcoming them. There is an assumption that once the root of the problem is identified and uprooted, then the enuresis will disappear (Maizels and Rosenbaum 1982)

Selig (1982) observed that there are insufficient literature and limited information in support to permit limi conclusion regarding the use of alternative treatment method. Baker (1969) and Bollard et al (1989) strongly believe in the efficacy of alarm device in treatment of enuresis. They emphasized that before any attempt to alleviate emotional or behavioural problems and before proceeding with the treatment of enuresis, the nature of the disturbances must be made clear or identified. The existence of the bed wetting should not be regarded as providing evidence for the presence of some underlying conflict in the child, as great

majority of enuretic children do not present with or suffer from any extra ordinary degree of emotional or behavioural disorder.

(2) **Physiological Theories.**

The theorists have tried to postulate theories regarding the cause of nocturnal enuresis. Some zero theirs in terms of the fact that the children's urinary system fail to develop physical control of urination at night. The failure is assumed to be related to many factors ranging from immaturity of the connections in the central nervous system responsible for bladder control. Koff (1983) and Pondnar et al (1999) observed and reported hypoexcitability of sphincter nuclei, and hyper excitability of bladder motor nuclei as a minor dysfunction in the neuro-control of the lower urinary tract.

There is n long standing support for the theory that age is the best cure for enuresis .It can result from immaturity of neuro-physiological structures that control bladder which reduces as the age increases. Kawauchi et al (1998) noted during epidemiological survey of three years old children, which revealed some degree of increased incidence of enuresis among this age group but with remarkable reduction as the children advance in age. Fava et al (1981) believed that such development tends to support the widely followed practice of not intervening with treatment for nocturnal enuresis as such, before the age of five years when the purported prevalence would have dropped to 10-15 percents. It is pointed out here that even if there is a period for the commencement of dryness during infancy, only

interference with this natural process appears to have long term arresting effect, (Bollard et al, 1982). The epidemiological evidence confirms that among those children who are regular bed-wetters above the age of five years, the probability of becoming dry at night without any assistance of the therapist or any therapeutic intervention decreases rapidly.

Researchers like Fava et al (1981) and Kawauchi (1998) believed the presence of physical immaturity in some bed wetters, especially in primary enuretic children under the age of 5 years, when they compared them with the non-enuretic children. Bollard et al (1982) reported that enuretic children have slower physical growth, high rates of motor and speech abnormalities with delayed secondary sex characteristic development. He also observed the tendency of increased risk of bed wetting among those children showing delayed average intellectual development and those children with low birth weight. This is not widely accepted. (Arajarvi 1977). These physiological theorists believe in the efficacy of drugs above the age of seven. Imimpramim, vasopressin or Desmopresin are the drugs of choice (Scipien 1979).

(3) Behavioural Theory:

Behavioural theory is based on the premise that all behaviour, adaptive and mal adaptive are products of learning. Learning is a change in behaviour that results from reinforcement. The common belief is that since behaviour is learned, it can also be unlearned and adaptive behaviour can be substituted (Maloney 1987).

Pavlov (1963) in Rona et al (1997), is of the opinion that individual's behaviour is perceived to be under the control of his past learned experiences and current environmental circumstances. Bandura, (1977) a behavioural therapist, in his social learning theory, emphasized the reciprocal interactive relationship between individuals and their environment. This shows that individuals are seen as influencing their environment which in turn influences their behaviour.

Therefore, the environment of the child especially at the anal stage of his life, the method of his/her toilet training goes a long way in influencing his/her bladder control. Skinner (1953) in his planned behavioural change, elaborated on the effect of environment with response to "frequency" that explained the speed at which a response is expressed. As the child is compelled by his/her environment to realize bed wetting as unacceptable behaviour, participates in the bladder training, which is a behaviour approved by the society. Bed wetting is eventually abandoned. The child is prepared to maintain the behaviour of bladder control by the positive reinforcement within his/her environment (Leary and Kibel 1991 and Moffat 1997).

The theory of behaviourism states that all behaviour is learned according to a process of association or "conditioning" (Dolcys 1977). Clinically, this theory argued that learning could account for the so called unaccepted behaviour which includes enuresis. Therefore, it is assumed in this approach that behaviour can change and problems can be reduced if enough is known about the condition that maintains the behaviour. For instance, it is possible for the behaviour to persist when the mother avoids infuriating the child. Button (1988) explains it further that "a child temper tantrum at the local shop may persist because his mother always responds by buying him sweets. Whereas simple change in behaviour on the part of the mother and the significant others, can go a long way in lessening the problem". Though some problems can quickly be resolved, some may still require many sessions especially when the behaviour had been established in that individual for many years. Therefore in order to control and correct the habit of bed wetting, the child, the parents and the society need time, care and intensive programme over a relatively short time, to achieve the best result. Hence behavioural analysis is necessary to enable us study the pattern of any problem carefully. (Kohlenberg, 1973).

Behavioural theorists emphasized the role of learning in the development of processes necessary for achieving bladder control. The theory attributes nocturnal enuresis to a failure to develop cortical control over sub-cortical mechanisms (Hjalmas 1997 and Kawauchi 1998). Hence, most psychologists adopting a behavioural theoretical perspective on the treatment of bed-wetting, prefer to use

some version of the bed pad and alarm method. Some make use of the hypnosis as the basis for treating enuresis (Cederblad, 1968 and Kibel et al, 1991), though this method is not popular (Bollard et al 1989).

The high frequency of nocturnal enuresis, especially the primary enuresis, gives rise to etiological speculations. Cederblad (1968) doubted whether this enuresis can be classified as a mental insufficiency symptom or to be due to inconsistency in toilet training methods, or high frequency of genetically or damage due to cerebral infection. In 26% of cases studied by Cederblad (1968), enuresis was the only symptom while 75.7% cases co-existed with other psychopathological symptoms. It was reported that brain lesions may be one of the conditions that gives rise to enuresis and those children with cerebral infection had higher frequency of enuresis.

Butler (1987) provided clue to the application of both hypnotherapy and self-hypnosis. He suggested that there exist a better chance of success of this method with older children though, the success rate is lower than when bed wetting alarm is used. It is difficult to understand how hypnosis works. This method use suggestions to aid the child to gain control of a range of behaviours associated with night time's toileting.

Many parents commonly attempt, in various ways, to alleviate their child's bed wetting behaviour by the application of numerous methods readily available to them, like corporal punishment following bedwetting episodes, waking the child at

various times all through the night in an attempt to prevent "accident" from occurring and recording dry nights when achieved. (Azrin et al 1974).

In many cases, these procedures may not be as effective in producing a cure to this problem. However; parents sometimes find that they can succeed in reducing wetting episodes for short period of time. Alarm method is still more preferable. Spicier et al (1979) and Banerjee et al (1993) and Butler et al (1998) expanciated on the management procedures using hypnotherapy, anxiety reduction, night-time waking schedules, fluid restrictions, star charts, rewards, punishments and dietary manipulation.

Some studies conducted by researchers, to determine the arousability of the enuretic children using alarm clock and tapped mother's voice, calling the child to wake up, discovered that enuretic children were significantly slower to arouse than the non-enuretic (Yeung 1997). It is a common belief that bedwetting is a consequence of the child's tendency to sleep deeply and be difficult to wake. Majority of the parents of the enuretic children are of the opinion that deep sleep is one of the main cause of bedwetting (Hjalmas 1997).

Despite this observation, many clinical observations of the relationship between depth of sleep and bedwetting have not resulted or given a clear support to the idea that deep sleep give rise to bedwetting. Bollard et al (1989) observed a contradictory result that does not support the idea that bedwetting is confined to times of deepest sleep.

Enuretic episodes have been found to be more commonly associated with deeper stages and bedwetting incidents are rare during the stage associated with lightest sleep and the rapid eye movement (REM) stage. Several studies have also observed that bedwetting does occur during all other stages of sleep. Some are of the opinion that the patterns of sleep among the enuretic boys have no link to bedwetting incidence; it remains the same whether the child wet the bed or remained dry.

Bollard (1981) supported by Kawauchi et al (1998) suggested that "not that bedwetting should be associated with a particular stage of deep sleep, but rather that bedwetting should accompany the transition from deepest sleep to lighter stages of sleep". This suggestion implies that the bedwetting should be regarded as consequence of a failure to arouse from sleep in time to control flow of urine. Therefore, it joins others to support the idea that bedwetting do occur during arousal from deep sleep and that enuretic children are harder to arouse. They are regarded as being unresponsive to stimulation from a distended and rapidly contracting bladder (De Perri et al 1972 in Bollard et al; 1989. Wolfish 1999).

Hjalmask (1997) also suggested that the sleep arousal system of bed-wetter, is significantly less effective than it is among children developing normal control of their bladder. Therefore, it may be that effective forms of treatment, like those who employ the use of bed pad and alarm device, achieve some success from the increased capacity to improve the arousability of the child.

PROBLEMS OF THE ENURETIC CHILD

Impact of bedwetting on children

Children in many studies indicated that they were unhappy about the bed wetting behaviour. Some were eager to accept and try any form of treatment, others stand the risk of drug over-dose as was noted by Wagner et al., (1988), who described these sets of children as easy-going individuals with positive self concepts. There are many children who appear indifferent towards the bedwetting problem. While some face parental disapproval, sibling teasing, and repeated treatment efforts that failed, others treatments result into shame and embarrassment to the child. Consequently, it lowers the child's self esteem, which is a psychological threat to normal development (Warzak, 1993). He pointed out that initially some children do not view enuresis as anything bad, problematic, undesirable or even abnormal, until it is condemned or disapproved by the family or friends. Outside the family circle, the child feels publicly humiliated of which extra psychological support will be needed by words of comfort or action to enable him/her socialize easily well. (Red sell and Collier 2001). Avoiding this embarrassing attitude is therapeutic since it motivates the child to cooperate with all the strategies that result to its cure. It also exposes the child to the risk of repeated drug therapy and over dosage. Butler et al (1988) observed in their report, a positive correlation between better response to treatment and being teased by other siblings.

Inability to Sleep away from Home

Enuresis is a childhood problem in which only the child and the caregivers can enumerate the hardship the child faces as he grows up. The amount of impairment associated with nocturnal enuresis is a factor in the limitation of the child's social activities. (Rosenstock 1977; Foxman 1986). For instances, there is unexpressed anxiety when there is need for the child to sleep away from home because of the effect of enuresis on the child's self image. The high degree of social ostracism by his/her peers infuriates the child, the punishment and the disapproval or rejection from significant others, especially ever observant mothers, are big huddles for the enuretic children to overcome.

Urinary Tract Infection (UTI)

Most children with enuresis may not have co-existing neurological disorder. It is observed in diagnostic and statistical manual of mental disorder (DSMIV) that prevalence of co-existing mental and other developmental disorders are higher among those children with disorders like encopresis, sleep walking and sleep terror disorders. However, urinary tract infection is more common in enuretic children, especially those with diurnal enuresis than in those who are incontinent. In most cases, the enuresis commonly persists even after appropriate treatment had been given to the associated infection. (Siegel et al 1976, Hansson 1992)

Allen (2002) said that several serious problems can occur as a result of abnormal wetting pattern in a child. Probably, as the detrusor muscle and the urethral sphincter strain against each other, "the weaker sphincter eventually fails,

making the bladder to squirt out urine". In the process, the straining build very high pressures within the bladder. The detrusor muscles respond by contracting and just as other muscles, given daily workouts to accomplish increase in size, shape and strength. (Ross and Wilson 1982). The increasing stronger contractions become very difficult to control, giving rise to abdominal cramps and leaking of urine. Subsequently, the bladder fails to empty itself completely of urine, resulting into the child experiencing repeated urinary tract infection (Loening-Baukc 1997).

The flow of urine from the kidneys to the bladder is inhibited by the pressures, causing the ureters and kidneys to over-stretch, which in turn can be damaging. As the over-stretched kidneys work extra hard to push the urine through the ureters into the bladder, the high pressure there provides resistance. The valves at the ureters momentarily open to let urine into the bladder; it builds excessive pressure, which may push the urine back up into the kidneys. As time goes on, this abnormal urine flow may enlarge and distort the character of the valves so much that they no longer work well but allow the urine to move freely back up into the kidneys. Therefore, it is suggested that proper investigations, diagnosis and prompt treatment are essential to ward off this dangerous situation.

Urinary tract infection also can result in bed-wetting. These infections often cause additional symptoms, such as painful urination, foul-smelling urine, fever and could give rise to daytime wetting (Tanaka et al., 2003; Abdel-Latif et al., 2005).

Problem On The Family

The effect of nocturnal enuresis is not only on the child; it affects the family members too. It takes time and energy to keep the stench out. The stench of the stale urine Lingers in the house probably attracts the negative attitudes from the family members. Bollard et al (1982) observed the possibility of a strained mother/child relationship.

Mothers are the primary home keepers that are more concerned about the psychological stability of the children. Some expressed anxiety when the family must sleep away from home, receiving strangers into the home, as the girl child grows into puberty or the boy to adolescent and about to leave home for post primary school. (Levene, 1991)

CONCEPTUAL FRAMEWORK

Nocturnal enuresis is a behaviour disliked by both the family and the affected child. The stigma attached to bed wetting makes it difficult for easy identification and prompt treatment. Therefore the conceptual framework of the Social Learning Theory will be used to explain the behaviours of both the enuretic child and the significant others.

Social Learning Theory used in the control of Nocturnal enuresis

Social learning theory by Bandura (1977) regards behaviour as a function of an individual's self confidence in caring out an action and the success achieved meets up with expectation of the society. When the action is carried out successfully, the

encouragement strengthens the individual to maintain the behaviour. The enuretic child feels humiliated, dislikes the embarrassment with in the environment.

The expectation in the environment is to see the child sleep dry. Whenever he wakes up from dry bed, his parents are happy. The child is given all the necessary counsel that can help. The self efficacy comes when the actions are tried and dry nights are achieved, the child is encouraged to look forward to more dry nights. Then he attends the clinic regularly.

Bandura (1977) formulated the four-step pattern which combines a cognitive view and an operant view of learning; believes that the mind, behaviour and the environment play important role in the learning process. Using the 4 steps, Evans et al (1998) utilized multimedia for patient information in support of Bandura in the reciprocal influence of the environmental factors.

1) ATTENTION: The enuretic child notices something in the environment: the other children sleep dry, realizes that he is growing up and about to leave home for school. The behaviour is no longer tolerated and always unhappy for wetting bed. He observed the existence of the enuretic clinic, the privacy provide in the clinic, its proximity and the caption on the Bill Board "STOP BEDWETTING" (Evans et al 1998).

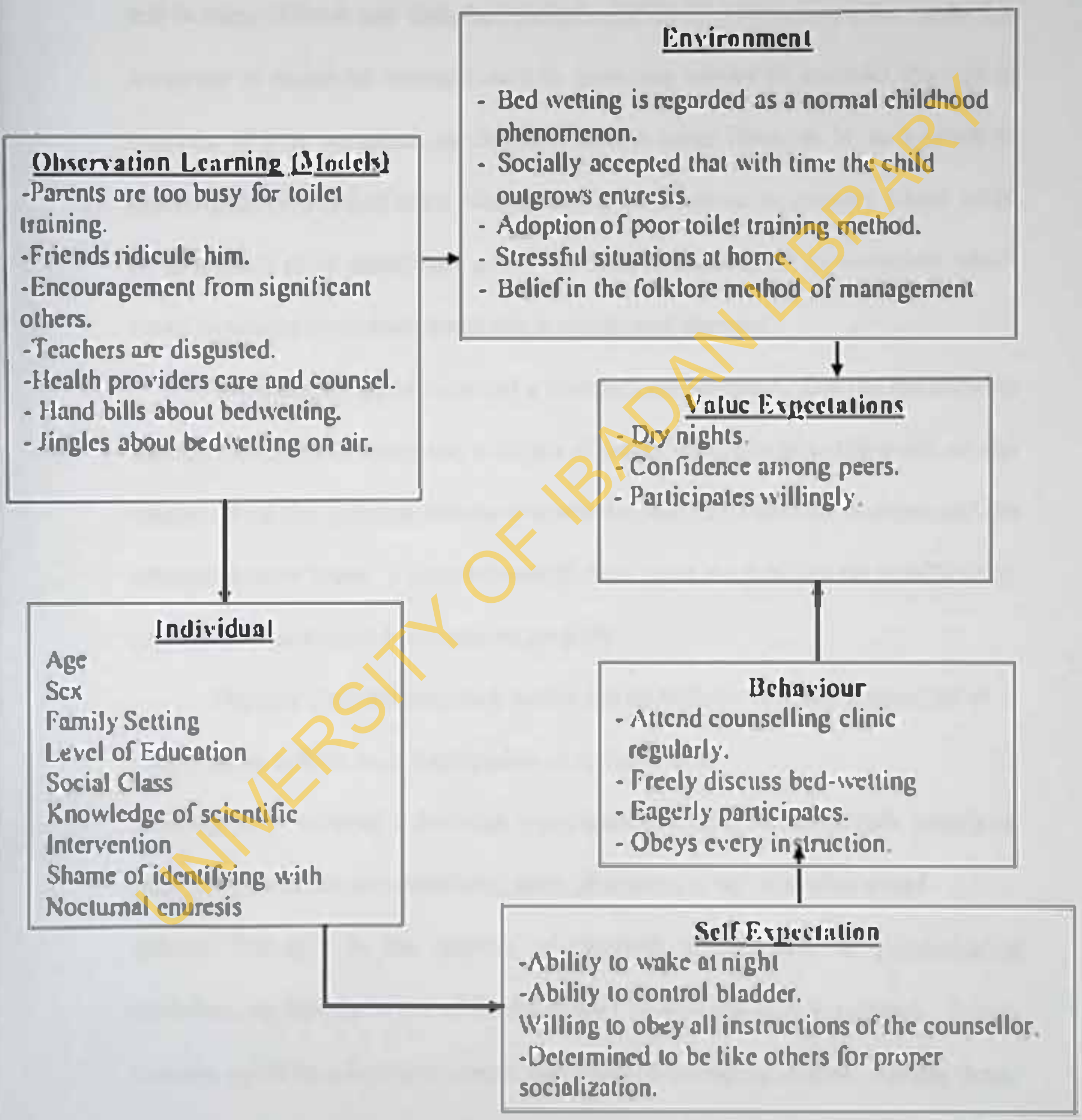
2) RETENTION: The enuretic child remembers the caption; is always embarrassed after each episode. The parents are happy when the bed is dry, and would not like the peer group to know about the habit.

3) **REPRODUCTION:** The child takes an action, wished to sleep dry, summons up courage and confidence to attend counselling clinic. took to all the counsel in the counselling guide.

4) **MOTIVATION:** The child is encouraged to look forward to clinic days when the outcome expectation (dry nights) is achieved.

Figure 4: Social Learning Theory (SLT)

Behaviour Model of SLT by Bandura (1977) applied to the management of Nocturnal Enuresis in children.



Management Strategies

In the management of Nocturnal Enuresis (either primary or secondary), the child psychiatrist may need to be informed in more stubborn or unyielding cases and in more difficult and disturbed patients, (DSM IV 1994). From the onset, it is important to assess the enuretic child by obtaining history to ascertain the type of enuresis. If it is nocturnal, or diurnal which is more likely to be as a result of neurological or physical cause like urinary tract infection; or primary which could be as a result of an anatomical defect; or delayed maturation; or secondary which could be related to environmental stress or acquired disorder.

The therapist should conduct a thorough investigation, find out the duration aad the frequency of symptom, evidence of recent uncomfortable life event, or any change. Find out parental attitude towards the enuretic child, the problem and the attempt to solve them. This is because in most cases the families are insufficiently organised or motivated to co-operate properly.

Physical Examination: look out for the identification of any anatomical or neurological deficits as in hypospadias or spinal bifida.

Investigations: conduct a thorough investigation, which should include urinalysis, microscopy, culture and sensitivity, tests, abdominal x-ray, and ultra sound.

History Taking: In the absence of physical, neurological or psychological disorders, explore the areas of family history to rule out family tensions. Simple measure could be adopted to control this emotion-damaging stigma. Simple family support and reassurance as well as discouraging parents, teachers and friends from

punishing the child, rather encourage the child to empty the bladder before going to bed. feeding the child early and drinking less fluid before bed time will help. Ensure proper toilet training. Guide against night fear by provide good light at night. The child's room should not be far from the toilet or keep the potty near and observe the child's sleeping pattern. A "Star" chart is a useful means of determining the frequency of enuresis and also helps to establish a reward system for dry nights achieved. Azrin (1974), Levene (1991) summarised the watch word as "Encouragement" constantly by every member of the household. The star chart should be recorded by the child. Encourage the child to keep the daily record in a diary. (Put the child in charge of the charts). The child keeps dry bed diary in a prominent place and records a red star on each dry night. A beautiful Gold star for 3 or 5 consecutive dry nights and buy a small nice present once the child collects 4 to 5 Gold stars. Wet night attracts no reward.

In extreme cases, additional use of Bell and Pad (Enuresis Alarm) could be helpful. This method is recommended for those above 5 years old. In this method, the child is expected to wake up when the urine is coming out and the alarm rings. the child is to wake up to switch off the alarm, complete urination, change the bed cloths under the parents supervision and reset the alarm before going back to bed. If this method is not successful after 3 months it should be discontinued. It is not to be used for children under 5 years old. (Levene 1991)

Chemotherapy

Most of the time, therapists first exhaust all the other methods that does not involve the use of drugs, investigate the cause if bedwetting, assess the benefit of the use of drugs and compare with the possible side effects of the drugs. Also the reason for the use of drugs, the age of the child and purpose for urgent need for a cure. This is because the use of drugs is reserved as the last resort, when every other method had failed and the child is leaving home for larger community (school). It has tendency for a relapse when the drug is discontinued. It is not advisable to use drugs in the management of nocturnal enuresis in children below 6 years (Button 1988). There are many drugs available, these include; Tricyclic antidepressant in small doses. It is effective in overcoming (NE). It helps the child to sleep less deeply and be aware of the bladder filling up. A relapse is common on withdrawal of the medication, (Bakare 1987).

Other drugs include imipramine 25 to 50mg at night- (in phobic state), vesopressing or Demopresin, in various forms. which could be inform of nasal spray. Amitriptyline (in depression), chlromipramine (in Obsession state), Haloperidol (in calming disturbed behaviour). All these drugs must be prescribed and monitored by professional health care providers.

CHAPTER THREE

METHODOLOGY

Design of the Study

The study is a descriptive cross-sectional survey involving parents and caregivers of enuretic children of ages 5 to 12 years old in Idikan of Ibadan North West Local Government Area of Oyo State.

The Study Population

The study population consisted of all children between the ages of 5 to 12 years in Idikan community. As a result of the difficulty of getting the children to own up, their parents, grandparents or caregivers were targeted to obtain relevant and more reliable information about childhood Nocturnal Enuresis (NE).

Description of the Study Area

The study was conducted in Idikan a traditional community in Ibadan metropolis of Ibadan North West Local Government Area. Ibadan is a city in Oyo State, Southwest of Nigeria with a population of about 1,228,663. According to Census (1991), the estimated population of Idikan community was 8,565 in 1991 and it was projected to be 9,886 by 1996 (National Population Commission, 1991). The majority of this population are the Yorubas. There are five local Government Areas in Ibadan metropolis. The five LGA include Ibadan North, North East, Ibadan North West, South East and Ibadan South West. The Ibadan North West

LGA has it's headquarter at Onireke. It has a population of 147,918 (Census, 1991). It comprised eleven wards. The Ibadan North LGA bound it in the north. in the east by the Ibadan North East, in the South by the Ibadan South West, and the extreme west is the Iddo LGA. The Ibadan North West LGA include: Ayeye, Oke Are, Agbeni, Idikan, Olorisa Oko, Onireke, Olopomewa, Oniyanrin, Dugbe, Mokola, Ekoledo, Idishin, Eleyele and Jericho. Idikan was randomly selected by balloting.

Idikan is a community in Ibadan North West. It is made up of 65 compounds. Each has a community leader referred to as Mogaji who is supervised by a higher chief known as Baale. The Baale is responsible to the king, the Olubadan. The language of the Idikan people is Yoruba.

There are primary and Islamic schools for the Idikan children. The people are religious, the churches and the mosques co-exist with the traditional religion at Idikan. Market transactions are carried out everyday of the week. Many houses are made of mud, unplanned and leaving little or no space for playgrounds. Few houses are made of bricks and well positioned. There is only one trunk B tarred road in Idikan, other roads pass between the houses criss-crossed by the gutters. There are unauthorised refuse dumping grounds and a local government made-shift toilet facility. Personal well-water supplies were available in very few houses. Besides, there are public pipe-borne water taps and local government bore-hole sited at open spaces for communal use. The people live in compounds and they value extended family systems. Idikan is a model site for community medicine activity for the

University College Hospital. There are two health care facility centres with visiting doctors in this community.

Estimation of Sample Size

The prevalence of (NE) was not previously known in Idikan community. Supposed the prevalence of enuresis was approximately 50% and an estimated difference of 50% can be entertained from the true values at 5% confidence interval.

An estimated sample size can be calculated as below:

$$\text{Sample size} = \frac{Z^2 Pq}{d^2}$$

Where, z= standard deviation for α error

α = 0.05 (probability of wrongful rejection of null hypothesis)

P= assumed prevalence of enuresis in Idikan, 50%

q= the prevalence to be detected, 42%

d= margin of error to be accommodated, (p-q); =5

From the fore going, minimum sample size, $n = \frac{1.96^2 \times 50 \times 45}{5^2}$

$$n = 345.7$$

A minimum of 346 children with enuresis was needed to be studied.

Sampling procedure

Before the commencement on the study, enumeration of the compounds and houses were carried out. There were 65 compounds, with 750 family units enumerated. The investigator and the assistants conducted house to house visit in order to study all children in the 750 families in Idikan. Of this number, 502 (66.9%), family units had children between 5 to 12 years old. Out of this 502, only 284 (56.6%) family units had enuretic children aged 5 to 12 years which met the inclusion criteria for the study.

Instrument for Data Collection

Three instruments were used for data collection in the study. These include:

1. Focus group discussion guide
2. In-depth interview guide
3. Semi-structured questionnaire.

The Focus Group Guide

Two sets of FGD guide were constructed. The first contained a 7 item questions written in both English and Yoruba languages, designed to gather qualitative information from the enuretic children about their opinions, experiences, feelings and the impact of the management strategies on them. The second FGD guide was designed to gather information from the parents and caregivers. It contains 8 items also written in English and Yoruba languages. The discussion

focused on the presumed causes, beliefs, preventive and Management strategies of enuresis. The FGD guides were pre-tested among 5 enuretic boys, 6 enuretic girls in different days and 8 care givers (comprising 2 young fathers, 2 young mothers, 2 elderly grand fathers and 2 elderly grand mothers) in single session in Akintola Road. This was to streamline and pre-test the questions that were going to be administered to the groups at the study area, Idikan.

In-depth interviews guide

The in-depth interview guide contains 15 item questions that relates to the respondents knowledge of the causes, the effects, attitudes and management methods. It was utilized to obtain qualitative information used in streamlining the questionnaire. The in-depth interview guide was also used to gather information from the care-givers, opinion leaders, herbalists, herbal drug peddlers, teachers, pupils and traders through house to house visitation in Akintola Road of Ekotedo.

The Questionnaire

A semi- structured questionnaire was employed to collect data from the caregivers and parents of the enuretic children. This instrument was also pre-tested in Akintola Road of Ekotedo (Ward 9) which share similar geographical and cultural characteristics with Idikan in ward 3 of the same L.G.A of the community. The questionnaire contained questions on the demographic characteristics of the respondents and the enuretic children, the attitudes, beliefs and management strategies for the enuretic child. The questions were results of modifications arisen

from the focus group discussions and in-depth interviews earlier. The questionnaires were written in English and Yoruba languages.

Inclusion Criteria

1. All children whose age is from 5 to 12 years, as given by their parents, were eligible for enrolment into the study.
2. Parents or caregivers' consents.

Exclusion

1. Refusal of parents or caregivers to give consent.
2. Children younger than 5years or above 12years (Children 2 to 4 years and 13 and above).

Data Collection Procedure

The stigma attached to enuresis in Idikan necessitated the privacy when asking questions, thus individualized attention was employed. The research assistants were recruited from among the health team including a youth corper who reside in the community, also trained on the methods of data collection for the purpose of the study and conversant with both English and Yoruba languages.

Focus Group Discussion: Two sessions of focus group discussions were first conducted among groups of 7(EN) boys between ages 7 to 12 years and 6 EN girls between 7 to 12. Four sessions of Focus group discussions were also conducted in July 2000 among 4 groups of caregivers. Each group consisted of different groups

of 8 members, on each discussion session. Starting from the first set of 8 young females (aged between 18 to 35 years), 8 young males (between 18 to 35 years old), the elderly, 36 years and above were (8 women and 8 men) who have enuretic children in their care, on different days. The participants were drawn from Akintola road. They were visited and invited to take part in a focus group discussion. A convenient date and time were chosen by each group of participants. Each session lasted for thirty to forty five minutes. There were eight discussants, the moderator, an observer and a time keeper who tapped the discussions.

The moderator welcomed all with prayer and explained the reason for the meeting in English and Yoruba languages. Every member introduced himself or herself. All the participants were allowed to express themselves without interruption in either English or Yoruba. The sitting position was semi circular. Questions were asked using the FGD guide. The time keeper allotted time for each question and answer; for the adults, refreshments were served as the meeting progressed. The meeting lasted for 30 minutes. The children were also given pencils and exercise books at the end of FGD meetings.

Many of the respondents commented that the time spent was too long. Therefore some questions were reconstructed to reduce the number of questions. Some of the mothers did not answer the question - "How many children do you have?" Because they believed that children were not to be counted. To avoid this, the question was restructured using indirect approach to elicit the number of senior and juniors to the enuretic child. Some of the closed ended questions were

modified to accommodate open ended questions to allow for free expression. The young mothers could not make useful contributions to the discussion in the group of elderly men and women, therefore age and sex of the participants were considered in the grouping to encourage free expression. Before the actual field work, the modified F.G.D guide was retested again at Akintola Road. At the end of the focus group discussion, the tapped responses were transcribed, themes were developed, data was collected and analysed using simple tables.

In-depth Interview: was conducted and tape recorded by trained research assistants in Idikan areas of Ibadan North West between December 2000 and April 2001 utilizing 15 item interview guide. It was used to gather information from 2 grandparents (male and female), a female church leader, an Islamic teacher, one primary school teacher, the head of a compound, the councillor of the ward, 2 traditional healers and 2 Drug peddlers who claimed to have managed many cases. The interview was conducted through house to house visitation. The interview time and place was scheduled at the convenience of the respondents. The information obtained from this exercise was used to construct the questionnaire.

The Questionnaire: In each house visited, the researcher introduced herself to the family head or his representative. The study was introduced to every participant and their consent obtained. In houses where enuretic children exist and their parents were not immediately available, appointment was booked; a repeat visit was made at the client's convenience. Where the enuretic children wished to participate, they

were allowed. Thus, there were no fixed times. The questionnaires were administered by the researcher and trained assistants. It took an average of 55minutes to finish asking the questions and counsel where necessary.

To ensure the cooperation of respondents, a formal letter of introduction of the study was written to the communities through the community heads. The confidentiality of the procedure was assured as many mothers, especially, indicated their unwillingness to respond to questions relating to bedwetting openly. The interview did not commence until a verbal reply of the letter was received through the health centre in favour of the study. The coupon in appendix D was used to attract the attention of the respondents.

The researcher and the assistants maintained a cordial relationship with the respondents, provided individualized contact and follow up. This helped the parents to encourage others to volunteer to participate.

The visit was scheduled to be during the day time everyday of the week for two weeks. The absence of many interested participants prolonged the visiting time. The places visited include offices, market square, individual shops, religious houses and schools. The stigma attached to enuresis necessitated the privacy, thus individualized attention was used. The research assistants were recruited from among the health team and a youth corper in the community. All research assistants were trained on the methods of data collection for the purpose of the study and were conversant with both English and Yoruba languages which were predominantly in use in Idikan.

Reliability

For the purpose of reliability of the study, the instruments (Focus group discussion guide, in-depth interview guide and semi structured questionnaire) used in the data collection were properly criticized by colleagues, corrected and modified by the supervisors. The open ended and closed ended questions were asked to allow for wider self-expression. The instruments were written in English and Yoruba languages and pre-tested. The research assistants were fluent in both English and Yoruba Languages.

Validity

The participants were drawn from among parents with enuretic children and those children that wet bed at night; in the community of Akintola Road in Ekotedo in Ward 9 of Ibadan North West away from the community where the questionnaires were going to be distributed. The study was explained to the participants and their consents were obtained. Each participant willingly volunteered to take part. The enuretic children were identified among their peers away from those who do not belong to the age bracket and adult influence.

The participants were opportuned to express themselves on areas of the questions that were not clear to them. The FGD guide was pretested among 8 participants both male and female, young parents and aged grandparents in one session. This lasted for forty-five (45) minutes. Actual FGD guide was done in four sessions involving 7 – 8 participants, lasting between 30 – 35 minutes. From the result of the active participatory contributions of the participants in the pre-test,

some conflicting questions were modified, sitting arrangements were adjusted and the participants were regrouped based on sex and age differences.

The outcome of the FGD was used to modify the questions for in-depth interview and the questionnaire. The in-depth interview guide was also pre-tested in Akintola Road of Ekotedo. It was modified before being used in Idikan Community. The twenty five item questions were reduced to fifteen items in in-depth interview guide. Those who have enuretic children,those who had had one before and those who were helped to overcome the problem were interviewed. Audio Tape Recorder was used to record the discussion. Reducing the items in the questionnaire, from 45 to 33, modified the questionnaire.

Data Analysis

The taped interview were transcribed. Themes were generated and the results were interpreted. After the questionnaire were filled and collected, each questionnaire was checked for completeness and accuracy of information by the researcher. Post coding was done for responses to open ended questions. The data were entered into a Microsoft computer and analysis was done using the Statistical Package for Social Science (SPSS for window 11). The data were represented in tabular form and demographic characteristics using graphs and bar charts.

Ethical Consideration

A letter of introduction to the chairman of LGA and the chairman of community Health Committee of Idikan was obtained from the Department of Health Promotion and Education to enable the researcher to gain community support for the study. Permission to access vital information on the area was obtained from the Ibadan North West LGA chairman. The counsellors of each ward were duly informed. The letters were sent through the community health facilities in these affected areas to be announced in the churches, mosques and community heads, to keep them informed about a possible house to house visitation. A reply was received after four weeks. A verbal informed consent was obtained from each head of the family. No one was compelled or coerced into participating in the study. Information on the subject and family was kept confidential by using only identity numbers on the data form.

CHAPTER FOUR

RESULTS

Focus Group Discussion

Children's Perception about NE

Most of the children identified NE as bed wetting at night popularly known as "Atoole" in Yoruba language but could not differentiate between bed wetting that occur while asleep and while awake.

Children's Reason for bedwetting

Only very few of them above the age of 8 could think of the reason why they wet bed at night. Majority of the boys said it could be because they were playing football in their dream. When the bladder is full, and one is pressed to pass urine, one think he is at the right place where one can ease one self. "*When you pass urine in the dream you feel relieved*" *said one boy,* " *unfortunately the cain will greet me in the morning*" said another. Some of the girls could not really tell why they wet bed regularly, only few said they were usually very tired after a days hawking while majority of the girls believed that they wet bed because of too much of fluid intake at night.

The Management Strategies Adopted by Parents

The boys described what their parents or care givers do when they wet bed in different ways "mummi mi afun mi le gba ni" "*my mummy decorates my body*

with the mark of the coin generously" "What annoys me is that the abuse is always early in the morning. It spoils my day. My grandmother helps me, she always encouraged me to prostrate to the grinding stones and to pass urine on hot ash every night". "with the coin, my grandmother compels me to drink "agbo" native medicine" said another boy. Others said they were given other things to eat. Majority were starved and have their sleep interrupted frequently at night. The boys danced the enuretic dance while the girls were not subjected to the enuretic dance but agreed that the verbal abuses were more traumatic than the enuretic dance.

Actions after Bedwetting

The majority of the boys said they quickly changed into dry clothes. Most of the girls said they pretended to be sleeping until the other children have left the room. Just few of them said they swapped position to cause confussion, because *"while arguing on the identity of the bed wetter, mummy will only verbally express her anger".*

Feelings of the Children

On the feelings of the children about their parents action, all the children did not accept the method of beating, dancing to the enuretic song and scolding as the cure because it did not help to secure a permanent cure since most of them still wet bed on a regular basis. Some said it worsened their situation because it

exposed the secret to many of their friends. A boy said "*I hate myself when I dance the enuretic song*". "*I would not feel like going to school that day*" said another "*I feel like running away from home before mummy comes. I cry any day my mummy scolds me openly I will not eat my food and will not feel like playing with anybody that frustrates my mother the more. It brings a bad day to me in school*, were the feelings of the enuretic children. The fear of being beaten made some to tell lies and deceive their parents in different ways.

The Problems of the Enuretic Children

The children encounter some problems because of the bed-wetting. This includes skin rashes, said one of the boys that sleeps on the floor. Another, is humiliated and isolated because he is the only one among the other siblings that sleeps on the two benches pushed together to serve as bed for him.

The smell of urine stays too long on the skin even when one baths it is difficult to leave the skin. "my school uniform also smells" was the problem to another child. Shame and inability to challenge their peer when necessary were another problem.

Many said they tried everything that their parents and friends suggested that could help without a permanent cure. All the children were eager to stop bed-wetting. The 10 years and above expressed their disgust and looked forward to the

counselling guide.

Focus Group Discussion with Respondents

Participants' Perception about Nocturnal Enuresis (NE)

All the participants identified NE as bed wetting at night. Majority perceived NE as normal childhood phenomenon before the age of five. Only those children above age of 7, perceived NE as a hindrance to free association while below this age, the children expressed no inhibition. Some parents did not take note of when their children started bed wetting, how many times per night or observed what really aggravated the episode. Though half of the participating fathers said they paid little attention to NE before the age of five, some mothers punished or ridiculed the enurctic children at this age.

Problem of NE

The participants enumerated the problems confronting both the enuretic child and the family, ranging from the embarrassing stench that lingers on in the house and on the school uniform, to skin rashes most especially, when the child sleeps on the floor. Some of the mothers said "*it takes time to keep the house, clothes and beddings clean*" another participant said "*it is energy consuming. Also, restricts one to his/her own house because one would not like others to comment on the nasty odour that the urine leaves behind*". A young mother said that she

observed that the odour left by the stale urine attracts flies that lay their eggs on the floor. The eggs hatch into small maggots that burrow into the skin of the child that sleeps on the floor. It sometimes results in skin infection. Most of the mothers said they therefore, became highly irritable and naggy. Consequently, the strained relationship between mother and child creates enmity between them and the other siblings including those who teased the affected children.

Participants' experience

Only very few participants in the FGD admitted wetting bed at night when they were young. While many simply tried to push the memory behind them, a few were eager to share their experiences. A young mother described her ordeal whenever she wets her bed as a child. The experience varies with age. The experience in most occasions. special incidents compel the enuretic child to make conscious effort to stop bed wetting. As a regular bed wetter, a mother narrated how she stopped bed wetting during her childhood days. On the last day of her bed wetting, she quickly changed position and clothing and moved the junior sister to the wet part of the bed. While the father was flogging the innocent girl, the actual bed wetter went to a corner and cried bitterly. She felt bad because she knew that she was the guilty one and not the other child. From that day on. she made serious conscious efforts to stop bed wetting and was successful. A father also narrated how he felt when he was asked by another father "*that time, did they call you names or other forms of ridicule?*" He exclaimed "*Ah! That was another thing*

Can you imagine my feelings? They had special song for me in Yoruba like this 'Tole, tole ao bawlii Ewure tole a o bawli' This imply that I pass urine on the bed just as goat pass urine in the house without caution They will be Singing, dancing and mocking me in the midst of my juniors and friends It was difficult for me to summon up courage to play with them. I did not like it because the other children easily called me (Atole) bed wetter at the slightest offence or provocation I really felt dejected". A father caught in *"as if that was not enough, I was also made to sing in company of my neighbours from pole to pole prostrating to the dry electric pole nnd sometimes to the grinding stones too, asking the pole to please wake me up at the middle of the night. The pole should not allow me to wet bed at night agnin, while my friends clapped and laughed at me. I had to do whatever they asked me to do because they told me that it would help".* Some students also explained the way hot ash were prepared for them to pass urine on each night before going to bed. Majority narrated how the mothers interrupted the children's sleep. "My mother hits me hard to wake me up to pass urine", "I prayed every night, yet I wet my bed. I am fed up" said mother.

Participants' mode of Management

All the participants have at one time or the other tried the efficacy of waking the child up at night. Some will rather deny the child any fluid at night. Others said they ensured that the child eats his/her dinner very early. Majority combined the above with scolding the child regularly, physical punishment with

cain. psychological harassment with various threats like putting a dead snake to bite the child's urethra. cooking wall gecko for the child to eat. Some actually prepared the roasted egg cocoon of praying mantis for the enuretic child to eat before bed time. Some participating grand-mothers described, (one after the other) how they prepare the broken calabash containing hot ash in to which the enuretic child must pass urine. Alternatively, the child goes directly to the tripod stand and pass urine on it to quench the fire. It is believed that in the same manner, when the bladder is full, the heat from the hot ash will burn the urethra and automatically wakes the child up from deep sleep to empty his bladder.

Some believed in the efficacy of the enuretic songs. Those who did not respond to the above strategies, were made to sing to dry woods or electric poles for some days. More boys than girls were compelled to sing to the grinding stone to wake them up at night. The song "(*opo, kale o, ma je n'to ni oganjo o*"). "*Greetings to the pole, please wake me up at night, do not allow me to pass urine on my bed tonight*" will be echoed by those other children who will clap and compel the enuretic child to dance as they sing. The young teacher among the participants narrated how shameful it was for the child at school the first day he danced round the street singing to the poles and observed that child's concentration in the class was not encouraging.

A grand father combined the song with native herbal concoctions made specifically for the cure of NE, while a frustrated mother said that she had a strong conviction that wicked people must have cursed her daughter to bed wet.

Another mother was of the opinion that, nothing works until the child assumes physical maturity. This is because despite all her efforts, the child still wet bed. Therefore, she was of the opinion that nothing works because all efforts could not stop her until she assumed certain age. Another young mother privately said that this method rather worsened her situation as she was still experiencing occasional episodes.

On the outcome of the participants' efforts, in trying to manage the habit, some said that those methods worked for them, though not all the time. A mother said, this is because, when her children were allowed to spend their holidays with their grand mother, throughout the period they were there, the enuretic boy among them did not wet bed just to resume wetting bed (on daily basis) when they returned home.

Most participants agreed that they had, at one time or the other, consulted both the herbal drug peddlers and used the native concoctions and applied other methods. Majority agreed that the most effective effort was the method of withholding water from the child at night. But most of them combined this with waking the child up at intervals in the night. The mother whose five children wet bed at night explained that the ordeal and the sleepless nights were not good for her

health. After a hard day's job, when she could no longer cope, she relied only on encouraging the children to pass urine on the tripod stand with hot ash previously used in cooking their dinner. Non of them tried the use of Orthodox (Medical) approach. Few of the enuretic boys said they tried passing urine on hot ash, ate whatever the mothers brought to them. Some said they drank whatever that could help.

Participants Feelings

The mothers were upset about persistent bed wetting at night. One expressed her concern thus "*I cannot go where I want to go, like the night vigil because the child will surely sleep and wet the floor*". Few fathers were bitter about it. Most of the participants said they easily showed their anger and resentment after every episode. Only few participants said they can tolerate the habit after the age of seven, and that the children were frustrated when all effort did not cure the enuresis.

Few participating mothers from both age group categories said that most of the time, unhappiness dominated the feelings of their enuretic children. Most of them became ashamed and kept to themselves after every episode of bed wetting.

More than half of the participants were willing to seek for counseling and guide to the end of bed wetting. But a negligible number of them strongly adhered

to their belief that there were spiritual forces behind bedwetting at night that need to be appeased, a few others did not know what to do.

The perception about NE

In the course of searching for more facts during the in-depth interview, the herbalist, who stationed his vehicle at a strategic point, with a loud speaker with which he can reach out to many people, at the tail end of Idikan which is a market place, was interviewed. He claimed to have prepared the concoction ready for affected parents to buy and use. The herbalist also believes that there are 3 types of enuresis (1) the nocturnal enuresis (2) whether asleep or not. Both can spontaneously stop, the child can outgrow these types especially when his medicines were taken. But the third, is that which is inflicted on a person as a curse. It is usually by a male lover who feels rejected by the female he loves especially when he had spent some money on her and she leaves him for another man. He casts the spell of bed wetting on the female just to humiliate her so that when she starts wetting bed in the man's house, she will be rejected and frustrated out of the house.

When the female is humiliated out here and there, she will be forced to go back to the man who readily receives her and the herbalist is ever ready to remove the spell which will bring about the cure. He also explained that it is a taboo, for there is a belief that maternal urine, must not mix with her child's urine. Thus, as the age of the female advanced towards child bearing age and she still continue bed

wetting, there is possibility of her wetting the bed at night with urine which can mix with her child's. This can bring about high infant mortality in that family which is a bad omen. Therefore, as soon as the man discovers that his wife wets bed at night he will surely send her out. To avoid this miserable life, the female will be compelled to go back and marry whosoever can cure or remove the spell. Attention was drawn to a news paper publication by Amons Adaeze (2002) captioned "Help suitors avoid me because I wet bed at night".

Few of the participants attributed bed wetting to deep sleep. A mother commented that her son was to be blamed because "he is too lazy to wake up on his own". The belief of all the mothers centred on excessive play during the daytime by the boy's especially, than the girls as the cause of NE. Could this stand support the increase of enuresis among the boys than girls?

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Demographic characteristics of the parents and care providers

The distribution of the respondents by age and marital status is as shown in table 1. The age of the respondents ranged from 12 to 69 years with mean age of 37.5years. Majority (35.6%) were in age group 30 to 39 years while 18(6.3%) were 60 years and above. 226 (81.9%) of the respondents were married; 45(16.3%) were not, 1 (0.4%) was divorced, while 12 (4.7%) did not respond. The table shows that the majority (75.3%) of the respondents were matured adults and married (79.6%).

Table 1: Distribution of respondents by age and marital status

Age (years)	N	%
10 – 19	21	7.4
20 – 29	49	17.3
30 – 39	101	35.6
40 – 49	68	23.9
50 – 59	27	9.5
60 – 69	18	6.3
Total	284	100
Marital status		
Married	226	79.6
Unmarried	45	15.8
Divorced	1	0.4
No response	12	4.2
Total	284	100

Level of education of the respondents

Table 2 shows the highest educational attainment of the respondents. The majority of the respondents (46.1%) had tertiary education, (25.0%) had secondary education while primary education were (15.1%) and those with below secondary and above primary were grouped as post primary qualification were 20 (7.0%). Overall, those who had education were 265(93.2%) out of 284 respondents while those with no educational qualifications were 14(5.0%) and 5(1.8%) did not respond to the question on educational attainment. Majority of the respondents (93.2%) had formal education. Most of the enuretic children were from families with formal education.

Table 2: Level of education of the respondents

Level of Educational	N	%
Tertiary Education	131	46.1
Secondary Education	71	25.0
Primary Education	43	15.1
Post primary (modern school, JSS and Technical Education)	20	7.0
No Formal Education	14	5.0
No Response	5	1.8
Total	284	100

Occupation of Respondents

The distribution of the respondents by their occupation is as shown in table 3. Majority (35.2%) of the respondents were civil servants (employed by the government), 84 (29.6%) were traders, 37 (13.0%) were artisans, 28 (9.9%) were business proprietors (but self employed), 18 (6.3%) were housewives (that is unemployed). In all, the self employed respondents (64.8%) had more enuretic children than those employed by the government (35.2%).

Table 3: Occupation of respondents

Occupation	N	%
Civil servants	100	35.2
Small scale traders	84	29.6
Artisans	37	13.0
Business Proprietors	36	12.7
Full time housewives	18	6.3
Fill time Students	5	1.8
Farmers	3	1.0
Security Guard	1	0.4
Total	284	100

Relationships of the respondents to the enuretic children

The relationships of the respondents to the enuretic children are as shown in Table 4. Out of the 284 respondents interviewed, 134(47.1%) were mothers, 97 (34.2%) were fathers, 34 (12.0%) were grandparents, while 11(3.9%) were brothers/sisters living with enuretic children at the time of the study. Eight (2.8%) respondents were foster parents of the enuretic children. Those children living with their parents' wet bed more; both parents being together did not bring down the behaviour.

Table 4: Relationships of the respondents to the enuretic children

Respondents	N	%
Mothers	134	47.1
Fathers	97	34.2
Grandparents	34	12.0
Brothers/sister	11	3.9
Foster Parents	8	2.8
Total	284	100

Demographic characteristics of the Enuretic Children

Of the 374 children with nocturnal enuresis, there were 198 (53.0%) males and 176 (47.0%) females giving a male to female ratio of 1.1:1 (table 5). The median age of all the children was 9years; the median age of male children was 9years while the mean age of female children was 9years. No significant difference was found in the age distribution of males and females enuretic children in Idikan community; p = 0.283).

Table 5: The relationship between age and gender of the Enuretic Children

Age (years)	Gender				Total	
	Male		Female			
	N	%	N	%	N	%
5-6	44	22.2	33	18.8	77	20.6
7-8	41	20.7	40	22.7	81	21.7
9-10	98	49.5	80	45.5	178	47.6
11-12	15	7.6	23	13.0	38	10.1
Total	198	100	176	100	374	100

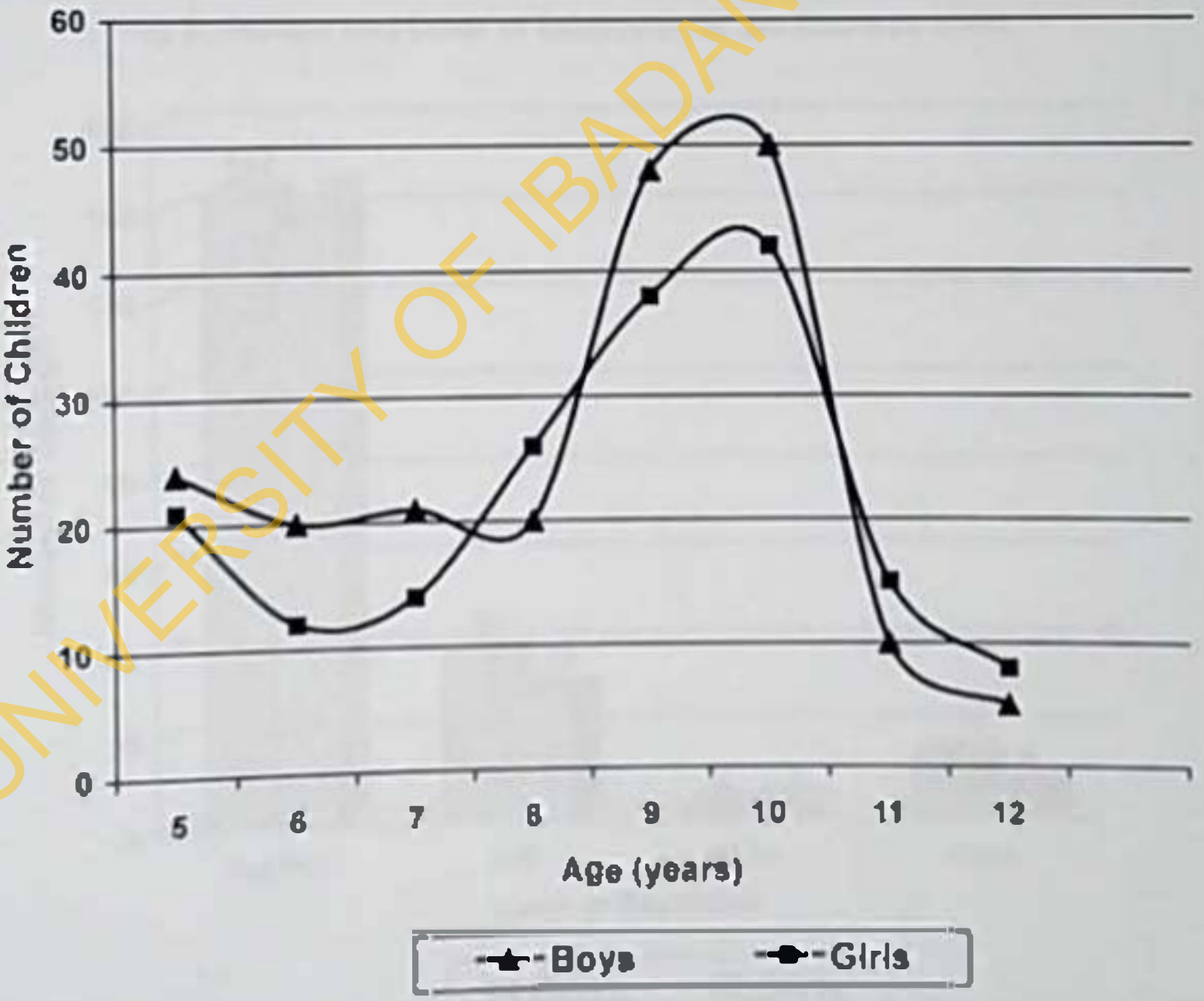
= 3.81; df=3; p = 0.283

X^2= 3.81; df = 3; p = 0.283

The age and sex of enuretic children in Idikan

Figure 4 shows the age distribution of the enuretic children. The peak age was 10years in boys and girls. There were more boys than girls from age of 5years to about 8years and after the age of 10years. In both Sexes enuresis is common in the very young and very few older children (1.7%) reported the behaviour.

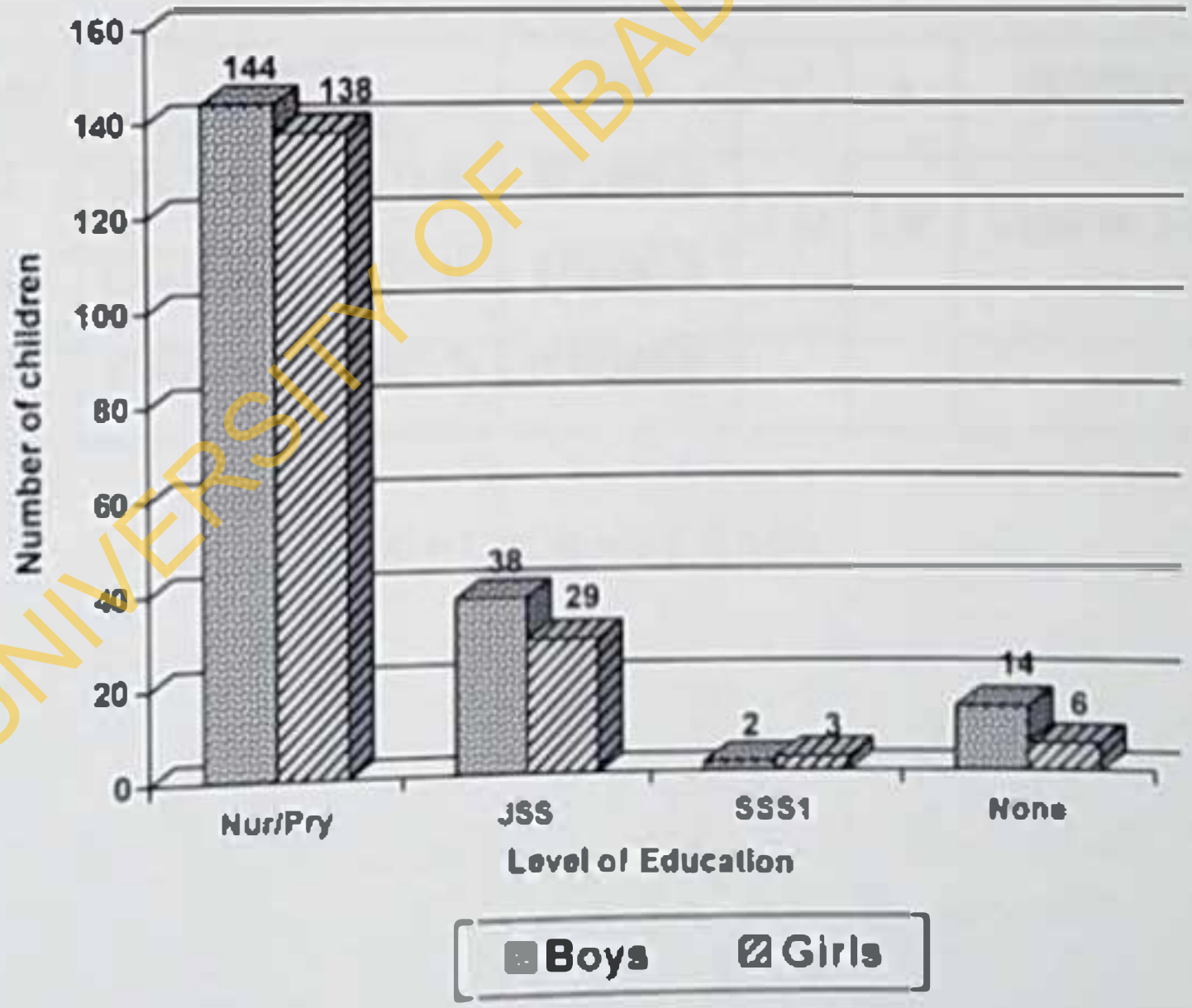
Figure 4: Trend of age and sex of enuretic children in Idikan



Gender and Level of Education of Enuretic Children

The educational levels of the enuretic children were as shown in Figure 5. Of the 198 boys, 144 (72.7%) were in nursery and primary schools, 38 (19.2%) were in junior secondary schools (JSS), 2 (1.0%) were in senior secondary schools (SSS) while 14 (7.1%) were either out of school or they were yet to commence schooling. Similarly, 138 (78.4%) girls were in nursery and primary schools, 29 (16.5%) girls were in junior secondary school and 3 (1.7%) girls were in the senior secondary school while 6 (3.4%) girls were not going to school.

Fig 5: Gender and Level of Education of the Enuretic child



The Reported Prevalence of Enuresis Among the Boys and Girls

There were estimated 1678 children aged 5 to 12 years (821 boys and 857 girls) from 750 households studied in the Idikan community during the period of the study. Three hundred and seventy-four children were declared by respondents (caregivers) as having nocturnal enuresis (bedwetting) giving an estimated overall prevalence rate of 22.3%. The gender specific prevalence of nocturnal enuresis was 24.1% and 20.5% for the boys and girls respectively (Table 6). The proportion of the enuretic among male children was not statistically different from that of the females; p=0.07).

Table 6: The Prevalence of Enuresis among the Study Subjects

Gender	Enuresis		Total	χ^2	p	OR(95% CI)
	Yes	No				
Male	198(24.1)	623(75.9)	821(100.0)	3.10	0.07	1.23(0.98, 1.55)
Female	176(20.5)	681(79.5)	857(100.0)			
Total	374(22.3)	1304(77.7)	1678(100.0)			

($\chi^2 = 3.10$, df = 1; P = 0.07)

Position of the enuretic child in the family

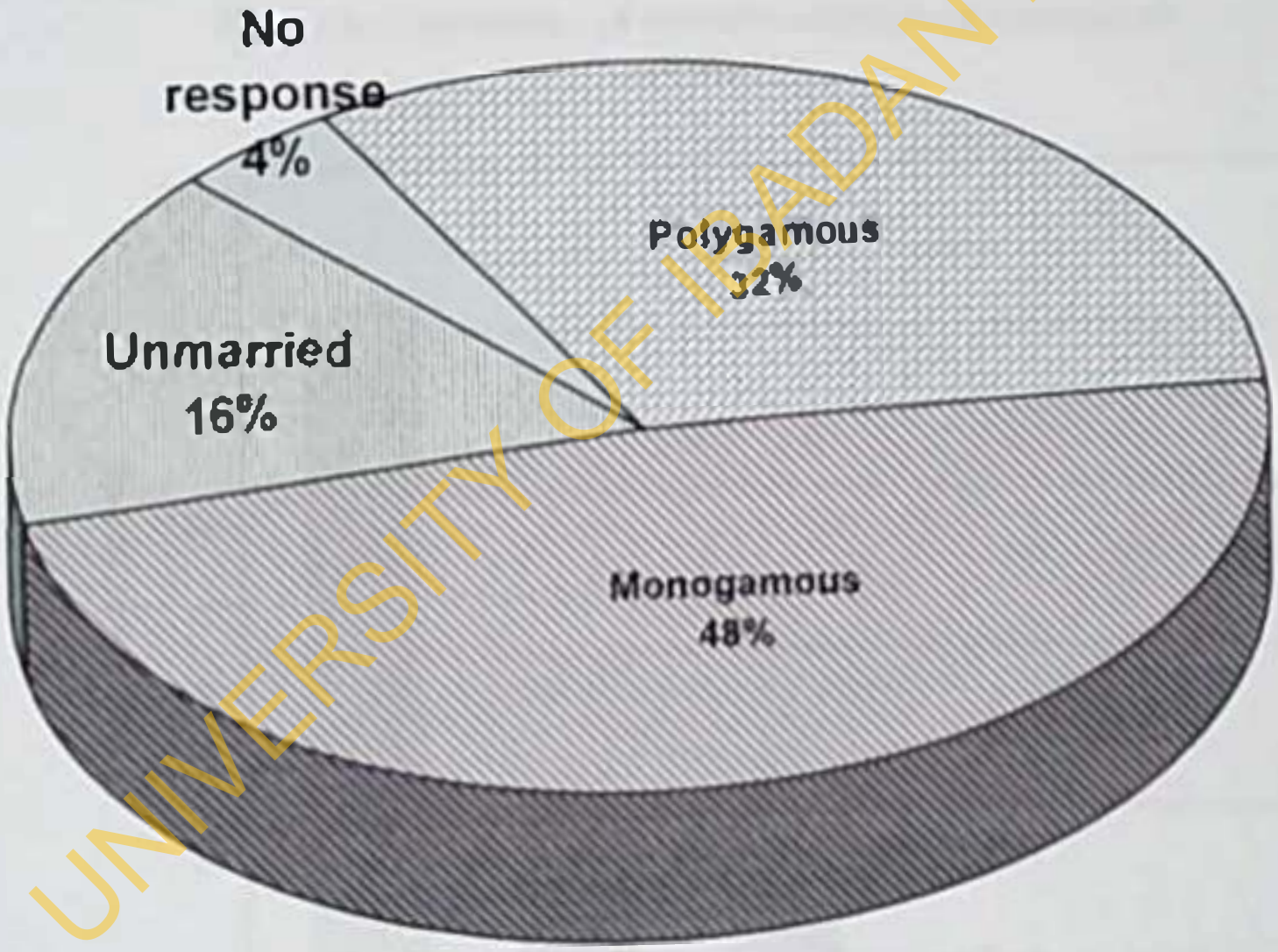
Figure 6 shows the position of the enuretic child in the family. Majority 146 (39.0%) of the enuretic children were the first child of the family, 109 (29.1%) children were in the second position. 78 (20.9%) children were in the third position, 40(10.7%) were in the fourth position while those in the fifth position constituted 0.3% of all children.

Figure 6: Position of the enuretic child in the family

Family structure of the enuretic children

The family structures of the enuretic children were as shown in figure 7. Of the 284, 137 (48.0%) were from monogamous family setting while 90 (32.0%) were from polygamous families. No response was obtained from 12 (4.0%) of the respondents. The enuretic children were found more in monogamous families (48.0%).

Figure 7: Family structure of the enuretic children



Distribution of enuretic children by number of families

Figure 8 shows the distribution of all enuretic children in each of the 284 families studied. Two hundred and seven (74.3%) families had a child each, 56 (19.7%) had two children each, 14 (4.9%) had three children, 2 (0.7%) had four children and 1 (0.4%) had five children with enuresis. Majority of the enuretic children were found in families with fewer children.

Figure 8: Distribution of enuretic children by number of families

Living status of the parents with the enuretic children

Table 7 shows living status of the respondents and the corresponding number of enuretic children. The highest proportion of bed wetter (52.9%) came from those whose parents were living together. those whose parents were not living together were (23.0%) and divorced parents (18.2%) while (5..9%) lived with their relations. p = 0.000. Majority (52.9%) of both the parents and the enuretic children live together while (47.1%) were.

Table 7: Living status of the parents with the enuretic children

Living status of parents/caregivers	Enuretic Children	
	N	%
Parents living together with enuretic children	198	52.9
Children are living with one parent because parents live separately	86	23.0
Children are living with one parent because parents are divorced	68	18.2
Children living with relations	22	5.9
Total	374	100

$^{*}X^2 = 48.17$; df = 3, p = 0.000

Frequency of enuresis reported by respondents

Among the 284 respondents, 238 (83.8%) were able to accurately observe the frequency of bed wetting episodes of their children, while 46 (16.2%) could not give account of the bedwetting episodes. Table 8 shows the frequency of episodes of bedwetting as given by the respondents. Out of the 238 respondents who could give accurate account of episodes of bedwetting among their children, 184 (77.9%) said that their children wet bed once every night, 46 (19.3%) bed wet twice weekly and 8 (3.4%) wet bed twice in a month.

Table 8: Estimated average frequency of bedwetting as observed by the respondents

Frequency of Nocturnal Enuresis	N	%
Once every night	184	77.3
Twice every week	46	19.3
Twice every month	8	3.4
Total	238	100

The perceptions of the respondents

Table 9 shows the perceptions of the respondents about enuresis. Multiple responses were used to express respondent's perceptions about bedwetting at night. One hundred and fifty-eight (55.6%) perceived enuresis as an important social stigma to the child and family, while 75 (26.4%) gave no response to this question Ninety-four (33.1%) perceived bedwetting at night as normal childhood phenomenon that can be out grown with time, 180 (63.4%) did not perceive bedwetting at night as the age increases as normal while 10 (3.5%) gave no response to this question. One hundred and thirteen,(39.8%) regarded enuresis as phenomenon that runs in the family and so the behaviour is not the fault of the child, 102 (35.9%) did not perceive it as the fault of the child per say, while 69 (24.3%) did not respond to this question. Two hundred (70.4%) perceived the occurrence of bedwetting at night as being more in boys than girls but more stigmatizing in females than males .Two hundred and fifty –five (89.8%) perceived bedwetting at night to be health problem as the child grows. while 39(10.2%) did not perceive enuresis as threat to healthy leaving. One hundred and ninety–three (68.0%) perceived bedwetting as a preventable threat to the psychological stability of the child, 22(7.7%) did not regard bedwetting as threat to psychological stability of the enuretic child 69 (24.3%) gave no response to this question, 157 (52.3%) describe bedwetting as serious, it has the tendency to get worst. 65 (22.9%) did not regard it as serious problem while 62 (21.8%) did not respond to this question as shown in the table 9.

Table 9: Perceptions of the respondents about enuresis

Perceptions of the respondents about bed wetting	YES N (%)	NO N %	No Response	Total N (%)
Enuresis as a social stigma to the family and child. It hinders the child from relating with friends.	158 (55.6)	51 (18.0)	75 (26.4)	284 (100)
Bedwetting at night is a normal childhood phenomenon. Many children out-grow it with time.	94 (33.1)	180 (63.4)	10 (3.5)	284 (100)
Bedwetting at night is not the child's fault. It could run in families.	113 (39.8)	102 (35.90)	69 (24.3)	284 (100)
Bedwetting at night is more in male than female children. It is more stigmatizing in female than males.	200 (70.4)	84 (29.6)	0 (0.0)	284 (100)
Bedwetting habit becomes health problem as the child's age increases.	255 (89.8)	29 (10.2)	0 (0.0)	284 (100)
Bedwetting at night can be prevented. If not corrected early can lead to other psychological l threats to the child's morale	193 (68.0)	22 (7.7)	69 (24.3)	284 (100)
Bedwetting at night can be described as serious because it can get worse	157 (52.3)	65 (22.9)	62 (21.8)	284 (100)

The respondents perceived causes of enuresis

Table 10 gives the account of perceptions of the causes of enuresis. Majority of the respondents (33.1%) perceived excessive play during the daytime as being responsible for bedwetting, while (14.1%) attributed the cause of enuresis to excessive water intake. Twenty eight (10.0%) had no idea; 27(9.5%) attributed bed wetting at night to deep sleep; 20(7.0%) to child battery; 15(5.3%) to overfeeding. 10(3.5%) to dreaming 8(2.8%) over pampering. Six (2.1%) to night fear; 5(1.8%) to curse or spell, 5(1.8%) said the problem was spiritual in nature while 4(1.4%) said it was caused by weak bladder in children; 3(1.0%) attributed it to consequence of stubbornness of the enuretic child, another 3(1.0%) to late sleeping ; 2(0.7%) to attention seeking behaviour and 2(0.7%) respondents said it was as a result of lack of proper parental care.

Table 10: The respondents perceived causes of enuresis

Perceived Causes	N	%
Playfulness	94	33.1
Excessive water intake	40	14.1
Deep sleep	27	9.5
Too much beating of the child	20	7.0
Overfeeding	15	5.3
Normal childhood phenomenon	12	4.2
Dreaming	10	3.5
Over pampering	8	2.8
Night fear	6	2.1
Spell or Curse	5	1.8
Spiritual problem	5	1.8
Weak bladder	4	1.4
Child stubbornness	3	1.0
Sleeping late	3	1.0
Attention seeking	2	0.7
Lack of proper care	2	0.7
I don't known	28	10.0

Respondent's feelings about bedwetting

Table 11 describes the respondents' feelings towards bedwetting habit as shown in table 11. Majority. 156 (54.9%) felt bad, sad and unhappy about the situation; 45(15.8%) annoyed, 37(13.0%) felt very much disturbed; those who felt disappointed were 11(3.9%); while those who felt ashamed were 10(3.5%); 9(3.2%) feel helpless; 7(2.5%) do not feel like doing anything; 6(2.1%) felt miserable and 3(1.1%) felt like beating the children. Negative feelings dominated the feeling of respondents towards the enuretic habit.

Table 11: Respondents' feelings to their children bed wetting habit (N = 284)

Feelings of respondents	Agree	Disagree	No response	Total N (%)
I am often sad or unhappy towards him/her	156 (54.9)	96 (33.8)	32 (11.3)	284 (100)
I am angry or annoyed and enraged over it	45 (15.8)	234(82.4)	5(1.8)	284 (100)
I am so disturbed that I can hardly concentrate	37(13.0)	211(74.3)	36(12.7)	284 (100)
I am disappointed because it persist despite all measures	11 (3.9)	201(70.8)	72(25.4)	284 (100)
I am ashamed that I cant keep guest in my house	10 (3.5)	198(69.7)	76(26.8)	284 (100)
I am helpless	9 (3.2)	189(66.5)	86(30.3)	284 (100)
I am indifferent	7 (2.5)	189(66.5)	88(31.0)	284 (100)
I have failed in my approach	6 (2.1)	210(73.9)	68(24.0)	284 (100)
I often feel like beating the child	3 (1.1)	199(70.1)	82(28.8)	284 (100)

Reactions of respondents to enuresis

Table 12 shows the various ways respondents responded after an episode of enuresis. One hundred and nine (38.4%) respondents verbally abused the child; 92 (32.4%) called the enuretic child funny names; 77(22.1%) preferred to beat the child; 67(23.6%) ridiculed the child in local dialects while 35 (12.3%) compelled the child to wash and sundry the beddings. As many as 90(31.7%) told the peers to mock him or her. While 46(16.2%) did nothing about the behaviour. 10(3.1%) care providers said they packed and washed the bed clothes. Five (1.8%) sang the enuretic songs for the child; 4(1.4%) told the peer group to avoid playing with the enuretic child. Another 4(1.4%) would rather warn the child seriously. Only 1(0.4%) believed in the efficacy of prayer for the enuretic child. All the respondents had negative reactions towards the enuretic child whenever the bed is wet only (0.4%) prayed for the child.

Table 12: Respondents reactions to enuretic behaviour of their children

(N=284)

Actions taken	N	%
Verbal abuse on the enuretic child, exhibit unfriendly attitude to the child.	109	38.4
Call the child bad names/refer to the bed wetting when the child is naughty.	92	32.4
Compel the child to wash and sundry beddings	77	22.1
The child is beaten	67	23.6
Child is ridiculed	90	31.7
Tell the child's friends to mock him/her	35	12.3
Child is ignored	46	16.2
Pack the clothes for washing	10	3.5
Singing abusing songs for the child	5	1.8
Tell friends to avoid him/her	4	1.4
Warn the child seriously	4	1.4
Pray for him/her	1	0.4

Child's Response to Respondent's Reaction

Table 13 shows enuretic child's response to respondent's reactions. Children responded to their parents or caregivers' reactions by showing dislike to ridicule (90.5%), (55.6%) cried, (17.3%) felt ashamed. Three (1.1%) of the respondents reported that their wards were usually indifferent to their approach or reactions to episodes of enuresis.

Table 13: Reported child's response to respondent's reactions to enuresis

(N=284)

Responses of the enuretic children	Number of Respondents N	%
Show dislike to ridicules	257	90.5
Cried	158	55.6
Feel ashamed	49	17.3
Look indifferent	3	1.1

Respondents' observed reactions of the children to episodes of enuresis

Table 14 shows that 123 (43.3%) respondents reported that their enuretic children were afraid of getting out of bed, slow to wake up and complaining. 112 (39.4%) quickly changed position, removed and hid the beddings or clothes, 107(37.7%) start the day unhappy, 53 (18.7%) allowed others to go away first before getting out of bed, kept to themselves and easy going for that day, while 27 (9.5%) showed no reaction when they wet bed. The majority (72.8%) of the respondents observed sense of fear and insecurity in the enuretic children.

Table 14: Observed child's reactions to episodes of enuresis (N=284)

Reactions of the child after episodes of bedwetting	N	% of all children
Afraid of getting out of bed /complaining	123	43.3
Quickly removes beddings/changes position hides the wet clothes	112	39.4
Starts the day unhappy, moody or refused to play	107	37.7
Allow others to go away first/keeps to self Easy going	53	18.7
Indifferent	27	9.5

Management options used by respondents

Table 15 shows the management strategies adopted by the respondents to correct or treat nocturnal enuresis. All the respondents adopted more than one remedy for enuresis. One hundred and ninety-four (68.3%) preferred verbal aggression to instil fear into the child before going to bed, (66.6%) received physical punishment before bed time, 94(33.1%) restricted the child from playing during the day time and compelled him or her to be responsible for the cleaning of the area, 90 (31.6%) restricted the enuretic child from taking water or extra food after supper, 37(13.7%) made the enuretic child to sleep on the mat or separate corner of the bed, 30 (10.6%) woke the child intermittently to pass urine, while 25(8.8%) encouraged the enuretic child to sing and dance to the enuretic special songs, prostrate to the grinding stone and pass urine on hot ash before going to bed. Five (1.8%) administered herbal medications and offer special prayers every night to control nocturnal enuresis.

Table 15: Management options used by the respondents (N=284)

Respondents' Methods of management	Number of Respondents N	% of all respondents
Verbal aggression to instil fear into the child before going to bed .Show your dislike about bedwetting	194	68.3
Child is threatened with physical punishment and other threats before bed time	189	66.6
Restriction from play during the day time .Make the child that wet the bed to be responsible for cleaning the area.	94	33.1
Avoidance of late supper gives early supper. Restrict any extra food once dinner is given. Restriction of water intake after night food.	90	31.6
Child is made to sleep on the floor with mat. sleep on a separate corner or side of the bed.	37	13.7
Mother Intermittently wakes the child up to urinate	30	10.6
Child is made to sing and dance to the enuretic song from pole to pole before going to bed. Child prostrates to grinding stone to wake him/her up from sleep. Then passes urine on a tripod stand containing hot ash before going to sleep.	25	8.8
Administer the herbal medication before the child goes to bed.	5	1.8
Every night. offer special prayer to control bed wetting	5	1.8

Respondents desire to discuss and seek help from healthcare provider

Table 16 showed that with respect to willingness to discuss bed wetting at night, with any - body outside the family, 203 (71.5%) were willing to do so while 72 (25.3%) were not willing to discuss enuresis, 9 (3.2%) did not know what to do. Also 203 (71.5%) would want to seek help from health care providers. 81 (28.5%) would not seek help while 69 (24.3%) did not know what to do.

Table 16: Respondents desire to discuss and seek help from healthcare provider

(N=284)

Desire for help and to discuss	Yes N	%	No N	%	Do not know N	(%)	Total %
Would you like to seek help from health provider	203	71.5	81	28.5	69	(24.3)	284 (100%)
Willingness to discuss bedwetting	203	71.5	72	25.3	9	(3.2)	284 (100%)

Respondents Reasons for their willingness to discuss

The table 17 shows respondents reasons for either discussing or seeking help from health care providers. Majority 107 (37.7%) respondents said stench from urine which is difficult to clear compelled them to wanting to receive help. Those who did not want to discuss 72 (25.3%) said it has to be kept personal (secret). Forty (14.1%) said the enuretic child felt apprehensive when ever the habit was mentioned. 22 (7.8%) said the children were still young, expecting the behaviour to stop since other children had stopped. But 18(6.3%) said it was irritating to them. 10(3.5%) would discuss enuresis with healthcare provider because it had caused them embarrassing skin rashes. 6(2.1%) were fed up and 9(3.2%) did not know what to do.

Table 17: Respondents Reasons for their willingness to discuss

Reason for decision	N	%
The uric stench/ difficult to get rid off	107	37.7
Secrecy personal, private,	72	25.3
I do not like the way the child react whenever you talk about bedwetting.	40	14.1
Still young, will soon stop other children have stopped	22	7.8
It is highly irritating	18	6.3
Embarrassing skin rashes	10	3.5
I am fed up	6	2.1
I do not know	9	3.2
Total	284	100

Belief of the respondents about bedwetting at night

Table 18 shows that 150 (52.8%) of the respondents believed that it was a taboo for a female to wet bed till adulthood for the fear of the child's urine mixing with mothers', 84(29.5%) had the belief that enuresis would be outgrown, 24(8.4%) believed the child should not be blamed, but 6(2.1%) believed that frog can be used to wake the child up from sleep when the urine is coming, 5(1.8%) believed that bedwetting is spiritual as the female child grows and the same number (1.8%) believed in efficacy of begging the poles, passing urine on hot ashes before going to bed to be the solution to bedwetting. Only 5(1.8%) respondents did not respond to the question

Table 18: Belief of the respondents about bedwetting at night

Beliefs of respondents about bedwetting	N	%
It is o taboo for mothers urine to mix with her child's urine	150	52.8
The child will out-grow bedwetting	84	29.5
It is not the child's fault	24	8.5
Frog can be tied on the waist of the enuretic child to wake the child when the "rain is about falling"	6	2.1
Bed wetting at night is a curse from the enemy targeting the female child or the family	5	1.8
The poles, the hot ash can wake the child up	5	1.8
Begging the poles, passing urine on tripod stand containing hot ash, eating wall gecko and roasted praying mantis egg sack can stop a child from wetting bed at night.	5	1.8
No response	5	1.8
Total	284	100

The Concern of parents about the enuretic behaviour of their children are shown in table 19. Majority of the respondents (62.7%) expressed their concern on the impact of ridicule from peer group, (55.6%) showed concern over the stigmatization of the child among his or her peers as the child grows, (36.6%) were concerned about the impact as the child prepares to leave home for school. Sixty-five (22.9%) respondents said they could not travel with enuretic children, 64 (22.5%) expressed anxiety over a girl child growing up with bedwetting habit, 50 (17.6%) said no suitor would accept to marry a bedwetting girl and (10.6%) expressed their concern over the inconveniencies and sleepless night experienced in trying to prevent bedwetting at night

Table 19 Concerns of the respondents towards the enuretic behaviour of their children. (N=284)

Expressed concerns	N	%
Friends of the enuretic children laugh at them, make jest to ridicule them, child is now conscious of the ridicule	178	62.7
Bedwetting at night stigmatizes the child	158	55.6
The child is growing up, will soon go to secondary school	103	36.6
I can not travel with the child	65	22.9
A girl with bedwetting habit must not grow up with it	64	22.5
No suitor will accept a girl with bedwetting habit	50	17.6
Mothers can not sleep when others are sleeping	30	10.6

CHAPTER FIVE

DISCUSSION

Demographic characteristics of the respondents

Age of the Respondents

The age range of the respondents who were mainly parents indicated that most of the respondents were matured adults. Majority of these respondents were young parents of 30-39 years old. This is the age group that needs to be helped for they are still at the peak of child bearing age; when young parents are expected to cope with the care of their subsequent children. In addition, this is a crucial stage when young parents are fully engaged and too busy to pay attention to toilet training of their young ones. A significant number of the respondents were still single (15.8%); this group would require more encouragement to cope with or solve the problem of enuresis among their children, as they may lack the support of their husbands.

Occupation of the respondents

A large number (35.2%) of the enuretic children in this study were from the parents working with the Nigerian Civil service. The unemployed parents (students and full time house wives) were few. However, majority of the respondents in this study were in the low income socioeconomic class; they live in a sub-urban community and were engaged in small scale subsistence trades and vocations.

Kalo and Bell (1996) Hanafin (1998) reported no significant association between paternal social class and occurrences of nocturnal enuresis .However, Rodriquez-Fernandez *et al* (1997), Gur. et al (2004) showed that the prevalence of enuresis was associated with the mother's social class. It is important to note that in most Nigerian families the occupation of the fathers largely determines the social status of the family. Significant proportions (47.1%) of the respondents in this study were mothers, in a sub-urban community, involved in subsistence trading, enough to classify them as low socio-economic class. The low socio-economic status probably has impact on environmental factors that encouraged enuresis (Obi, 1977 and Rona et al, 1997). The prevalence of enuresis has been reported to be higher among children from a family of low socio-economic status despite the child's age group (chiozza et al 1998)

Education of respondents

This study revealed that 93.2% of all the care givers of the enuretic children in Idikan community had some form of formal education while only a few (6.8%) were illiterates. It was also shown that almost half of the respondents had education above secondary school level. In Turkey, Gumus *et al* (1999) showed that the low educational level of parents was associated with nocturnal enuresis. Although no relationship was established between frequency of enuresis and the educational level in the present study, it was found to be more common in children whose care-givers had some education above secondary school levels. This finding is at variance with Gumus *et al*'s (1999) results. Some other investigators also reported no association between occurrence of enuresis and parental level of education (Singh et al., 1991).The finding of high prevalence of enuresis among the children of those with formal education and civil servants may imply that lack of time for full attention for toilet training could be a significant factor. Those with formal

education recognized enuresis as an unhealthy habit that need to be treated. Those with little education did not own up, probably expecting the child to out grow it.

Demographic characteristics of the enuretic children

In this study, fewer children were reported to have enuresis in the age groups 5 to 7 years and that the peak age of reporting enuresis was 9 to 10 years. Beyond age 10 years the frequency dropped rapidly. More boys than girls had enuresis in all age groups except ages 11 and 12. It has been documented that most children achieve nocturnal bladder control by ages 3 to 4 years (Horstmanshoff et al., 2003). Before age five, most parents pay very little attention to bed wetting at night (Wnrzak, 1993). This may probably explain why the reported cases of enuresis appeared to increase with age in the present study. Enuresis is more recognized as the child grows and the symptom persists. It assumes a state of importance especially at the period it becomes embarrassing to the family, as the age advanced and the child is aware of the impact of the stigma in his/her process of socialization. However, the peak of enuresis in the study of Chet et al., (2002) in Taiwan was between ages 3 and 4 years. The high number of enuretic children between age 8 and 10 in the present study agrees with report of Obi (1977) in Benin-city where most of the subjects were between age of 9 to 12 years old.

Prevalence of enuresis

Nocturnal enuresis is a known common childhood problem in both blacks and Caucasians (Rona et al., 1997).The study demonstated that enuresis is a sizeable problem in sub-urban community of Ibadan. The overall prevalence of 22.3% obtained in the present study is higher than 18.9% from Australia (Bower et al., 1996), 8.0% from Taiwan (Chang et al., 2001), 6.2% from Malaysia (Kanaheswari, 2003), 12.4% from Turkey (Gur et al., 2004) and 9.1% from Karachi (Mithani & Zaidi, 2005). An overall enuresis prevalence of 17.6%; 19.9% among boys and 14.9% among girls were reported among children resident in Igbo-Ora a rural community in the south-western Nigeria (Osungbade & Oshinamc, 2003). This gender specific prevalence was at variance with the findings of 24.1% among boys and 20.5% in girls in the present study. This data showed that nocturnal enuresis occurs more frequently among male than female children in Idikan community. This finding agrees with the reports of (Cederblad & Rahim, 1986; Foxman et al., 1986; Goin, 1998). This may be due to the bias of some parents in under reporting the symptoms among the girls because parents, especially mothers, tend to protect the integrity of the girls due to stigma attached to bedwetting in Yoruba culture. However, researchers have documented that since general continence is clearly linked with developmental maturity, perhaps females experience fewer problems in this area because they mature faster on average, than males (Goin, 1998). The boys are known to be very active in the day time and exhausted at night and as a result over sleep and are more likely to bed-wet at night (Kalo & Bella, 1996).

Education

In this study, majority (75.5%) of the subjects were in Nursery and primary schools while 19.3% were in secondary schools. More boys than girls were reported as enuretic at all levels of education except at senior secondary school one (SS1) as the study did not cover SS2 and 3 levels. This could account for the increase in the number of girls with enuresis in the ss1 class. These findings are similar to earlier report by Chiozza et al, (1998) in which more boys than girls had enuresis among Italian children. Similar findings were also reported in more recent studies from developing countries (Chong et al., 2001; Cher et al., 2002; Mithani & Zaidi, 2005). The researchers tend to agree that, as the children approach the age of leaving primary schools, the parents become more worried. Thus, many more cases are likely to be reported at ages 9 to 10 years. The reason why parents desperately look for a cure at this age level, is probably because of the psychological stability of the children, which was paramount in the minds of the parents, as the children prepare to enter secondary schools. Hence, they guide the children against some confounding factors, like enuresis, that might lead to truancy at this developmental stage of the children, (Cederblade 1986). This concern, could have contributed to the higher number of girls in senior class being reported to have enuresis in this study.

Child's position in the family

The study revealed that childhood nocturnal enuresis was most common among the first born children in Idikan community as 39% were first child of their parents. There was a decrease in the number of children with enuresis as the family size increases. Contrary to the findings of Roos et al.,(1997)who reported an increase in enuresis among the second and third born of their parents . This finding is at variance with the report of (Kolo & Bello. 1996) from Saudi Arabia in which being the first born of the family was found to protect against enuresis. However, the results from the present study suggest that many young parents might not have been exposed to the existence of enuresis and what it takes to manage it before the arrival of their first children. Thus, they might not have prepared for the best method of toilet training which could have been corrected during the subsequent births.

Frequency of enuresis

This study has shown that most of the children 184(77.3%) wet bed at least once per night, enough to categorize them as enuretic, according to the diagnostic criteria by DSMIV which stipulates that the behaviour is significant when it is up to twice in a week for about three consecutive months. However, the method used to document reported frequency of bedwetting depend on the recall of the respondents which varies with individual. Therefore the frequency might have been over- or under reported. About 16.2% of the respondents could not recall accurately the frequency of bedwetting in their wards.

Type of family

With respect to type of family, (31.9%) of the enuretic children were living in polygamous family setting. The result also showed that a significant number of the enuretic children were from families in which mothers and fathers were not living together. Among the associated factors that have significant relationship with enuresis, reported in the literature, included social class, large family size, low parental level of education, parental unemployment, family stress, separated family and n parental family history of enuresis (Devlin, 1991; Cher et al., 2002). Childhood enuresis has been reported to be most frequent in the children whose parents are either separated or single (Moilanen & Rantakallio, 1988).

However, a larger proportion of these children live with their parents, they wet bed at night. This probably suggests that when they live with their parents they tend not to make as much conscious effort as when they live or sleep outside their homes. As a single mother puts it, "whenever she (her daughter) visited grandma, throughout the period of her stay she will not wet her grandma's bed just to resume wetting bed when she returns home." This is in support of Bollard et al (1982), in his study of the effect of the temporary change of environment as an antidote for enuresis. Another possibility why children who live with their parents bed wet could probably be because most parents sleep in separate rooms from the child's room and have less time to wake the child up frequently enough to avoid bedwetting. Whereas, the child living without his or her parents have the fear built in him or her which can inhibit his or her freedom of expression, (Lovibond, 1963).

In addition, bed wetting at night may occur probably due to excessive water intake, lack of toilet facility closer to the child's room, night fear and exhaustion at night as reported in table 9. However, in some, the fear of wetting the bed and being beaten by surrogate fathers or mothers can even aggravate the episode which is the unconscious means through which the child expresses the covert behaviour. In this study, information on enuresis was volunteered by both parents in most cases. This might be a pointer to the fact that many of the families at the study area were anxious to get solution to their children's problem. Probably because of the hardship of washing the stench and house keeping that rest on the mothers. Hence, they would prefer to own up, though privately, if it can bring about solution.

Perceived causes of enuresis

Respondents attributed many factors to be responsible for enuresis, 33.1% were of the opinion that too much play during the day time resulting to exhaustion at night, probably responsible for deep sleep at night (Bollard et al, 1982; Lunsing et al; 1991; Kalo et al 1996). This finding agrees with the report of (Osungbade and Oshiname 2003). Excessive fluid intake and battering were reported as causes of enuresis by a significant number of the respondents in this study. The parents considered heavy sleeping and emotional problems as the main causes of enuresis in children; physical causes rarely were believed to be important as reported by (Haque et al., 1981).

In addition 4.2% of the respondents regarded bedwetting at night as normal childhood phenomenon and really did not know the cause of nocturnal enuresis.

Other perceived causes include over pampering of the child and attention seeking behaviour on the parent of the child. Majority of the parents blamed enuresis on some faults within the child while others attributed the problem to the faults from the caretakers. This suggests that many parents do not know the specific causes of enuresis. This is probably because enuresis is multi-factorial.

Management practices

Over half of the respondents in this study perceived nocturnal enuresis as a highly stigmatized childhood problem as the age advances. Therefore every episode of bed wetting made the respondents to display their resentment, helplessness and they became emotionally disturbed. These findings are similar to the reports of Shapiro (1989), Dobson (1989) and Schulpen (1997). The enuretic children reacted in various ways to the respondent's actions; they often started the day with unhappiness, quickly removed the beddings and were reluctant in getting out of bed whenever he/she passed urine on the bed clothes probably trying to hide the incidence and maintain the secrecy. Only 3.2% of the enuretic children showed no reaction as their own copping suategy in this study.

Most of the management strategies adopted by the respondents focused on the enuretic child. Majority of the respondents adopted negative attitudes towards their children or wards namely; verbal aggression, physical punishment, threats, deprivation (supper, water or sleep) and superstitious methods of singing to the poles at night. Enuresis is one of the most common developmental disorders among children, and often leads to considerable worry and distress in affected children and

their parents (Foxman et al., 1986; Dischie, 1988); it may cause secondary emotional and social problems in children who continue to wet their bed (Warzak, 1993; von Gontard, 2004). In the USA, Haque et al. (1989) found that 61% of parents viewed bed-wetting as a significant problem and that one-third dealt with it by punishment.

In the present study, enuretic children and their parents were also significantly distressed by the enuresis. The parents expressed their distress in varying degrees ranging from being sad, ashamed, and helpless to physical aggression against the child. The study showed that the majority of the parents would take immediate punitive measures against the enuretic child after bed-wetting episode probably because they believed that the child was to be blamed. This agrees with Foxman et al, (1986) who reported that two- third of large representative sample of American parents were worried about the symptoms and over half of the children were disturbed by the problem. The increased number of enuretic children living outside their parental homes exposed the children to higher risk of neglect and various levels of abuse. The parents who were worried showed signs of anxiety. This might be responsible for the multiple management strategies adopted. Can et al (2004) reported that high prevalence of enuresis among children leads to a high frequency of neglect and increased form of other types of child abuse in Turkey. Therefore, the worries and physical aggression have negative impact on the psychological makeup of the growing child. This may probably explain the vicious cycle of reactions found in mal-adaptive behaviours in later life

(Erickson 1963; Cohen. 1975; Dimitriou et al 1976; Selig 1982 Moffat 1997 and Rona et al 1997) also supported this finding.

Despite extensive reports of treatments for enuresis, parents who were worried about enuresis were more likely to treat it themselves than use medical intervention. That the present families used many management strategies for enuresis is not unique, as reported by Haque et al., (1989) and Bower et al., (1996). The parents in the present study adopted many traditional methods of managing the enuretic behaviour. It is disturbing to know that many parents in this study resorted to measures detrimental to the psychological growth and development of the child. The measures adopted ranged from curtailing the amount of fluid intake of the children before bed time which could be responsible for the constipation, one of the suggested causes of enuresis by (O'Regan et al 1986); interruption of sleeping pattern by waking them up several times in the night to pass urine. Almost all the parents in focus group discussion group accepted that they practiced the method of repeated waking at night to guide the child to pass urine which disturbed the sleeping pattern of not only the child but the parents too. Also these parents may not consider the implication of this on the child's class concentration and performance in school. There is no doubt that the majority of the parents believed that these measures could help in curbing the situation without considering the implication of the methods adopted. Approaching the problem through proper understanding of the emotional, psychological, physical and overall well being of

the affected child might be a better approach in helping the children to outgrow the undesirable situation early enough.

CONCLUSIONS

The findings from this study show that:

1. Nocturnal enuresis occurs among children in Idikan, a sub-urban area of Ibadan South West of Nigeria, with a prevalence of 22.3%. The estimated prevalence of enuresis does not defer significantly from data from other part of the regions in the same country and other developing nations of the world.
2. The prevalence of enuresis was higher among male children than their female counterparts in the same community.
3. Majority of the parents recognised enuresis as social problem, a stigma to the family which requires defuultive intervention and were willing to seek help.
4. The opined causes of enuresis vary among parents and caregivers of children with enuresis in the community.
5. Most of the respondents in this study adopted multiple strategies for the management of enuresis. Verbal aggression, threats of various degrees, restriction of the children from playing, beating of the enuretic children when they wet bed, starvation at night and social isolation were the methods of treatment adopted by the respondents.
6. Most enuretic children were unhappy, ashamed and would react negatively to their parents or caregivers' actions following episode of bedwetting.
7. Most management strategies adopted by respondents focused on the child only ignoring the parental role in the causes of nocturnal enuresis.

Limitation of the Study

The shame of identifying with enurctic behaviour hindered not only the enurctic children, but also their parents from giving free information openly. Hence the parents would rather collect the questionnaire and complete them on their own. This resulted into the loss of many and not filling some properly. Out of 520 questionnaires, only 502 questionnaires were retrieved well filled. The restriction of the age limit between 5-12 did not allow more information to be gathered from those below and above these age groups.

The study was conducted in Idikan, the restriction to Idikan limited information to what is practised in Idikan only. Therefore, the research could not be generalised. The study focused on Nocturnal Enuresis alone while some other forms of enuresis were not studied.

RECOMMENDATIONS

From the above findings, the following recommendations were made:

1. An orientation workshops and training on counselling for enuretic children should be organised for religious and community leaders to include both formal and informal children organisations, like the Sunday school groups, computer game groups, football play groups, moon light story telling groups e.t.c on how to help enuretic school age children in their groups.
2. Health administrators / educators should make available posters to create awareness and a counselling guide in the clinics which will assist health care providers to help the young mothers during the antenatal care, the school teacher, during school health programme, the enuretic children and their parents or caregivers during consultation at community health centres.
3. There is need to educate / empower young parents before the birth of their children about proper toilet training. Therefore counselling of the intending mother at antenatal clinic should include strategies for caring and dealing with problems of children who wet bed after the age of 5 years.
4. The use of radio jingles, television play-lets, cartoons and debates on enuresis and its consequent social problems will be beneficial to both parents and children. This should be made a regular fixture on the local television programmes.

REFERENCES

Abdel-Lntif M, Mosbah A, Bahnasawy MS, Elsawy E. Shaaban AA. (2005). Asymptomatic bacteriuria in men with orthotopic ileal neobladders: possible relationship to noctumal enuresis. *British Journal of Urology* Int 96:391-396.

Abe K, Oda N. (1991) and Hatta, H. (1984) Behavioural genetics of early childhood: fears, restlessness, motion sickness, and enuresis. Acta geneticae medicae ET Gemellogiae vol 33 pages 303-306

Abe K, Oda N. (1991). Contributions of genetic studies to clinical psychiatry. *Japan Journal of Psychiatry Neurol* 45:819-823.

Abe K, Oda N. Ikenaga and Yamada, I (1993) Twin study on night terrors, fears and some psychological and behavioural characteristics in childhood. Psychiatric Genetics vol 3 pages 39-43.

Allen TD, Bright TC, 3rd. (1977). Urodynamic patterns in children with dysfunctional voiding problems American Psychatric Association (1994). Diagnostic and Statistical Manual of *Trans American Assoc Genitourin Surg* 69:12-14.

Allen. T. (2002) Childhood Bedwetting: Cause for concern: Lecture Note south western Medical school Dept of urology. Archives of Disease in childhood.reuters limited carolina vol 87 page 20.

American Psychatric Association (1994). Diagnostic and Statistical Manual of Mental Disorders (4th Ed) American Psychiatric Association Washintom DC Pg 109

Amos Adaeze (2002). Help! Suitors Avoid Me: Sunday Punch Pg 15

Appooym Lara (1997). Understanding a bedwetting child: Family Line, Sunday Monitor. November 22nd Edition P 15.

Arajarvi, T., Kivalo, A and Nyberg, P. (1977) Effect of Anti depressants on Enuretic school children. *Psychaitria Fennica* Page 83-87.

Azrin N.H., Sneed T.J. and Foxx R.M. (1974) "Dry bed training rapid elimination of childhood enuresis" *Behavioural Research and therapy* 147-56 Vol 12 Page 142-56.

Bacyens D, Rocyers H, Vande Walle J, Hoebeke P. (2005). Behavioural problems and attention-deficit hyperactivity disorder in children with enuresis: a literature review. *European Journal of Pediatr.*

Baiilliere Tindal (2002) Nurses Dictonary 23rd edition published by Baiilliere Tindall page 301

Bakare Patricia I.O. (1987): The Relative Efficacy of Dry Bed Training (DBT) and drug therapy in the Treatment of childhood Enuresis Page 10.

Bandura A. (1977). Self-efficacy: toward a unifying theory of behavioural change. *Psychol Rev* 84: 191 - 215.

Banerjee S, Srivastav A, Palan BM. (1993). Hypnosis and self-hypnosis in the management of nocturnal enuresis: a comparative study with imipramine therapy. *Am J Clin Hypn* 36:113-119.

Barthold JS, Rodriguez E, Freedman AL, Fleming PA, Gonzalez R. (1999). Results of the rectus fascial sling and wrap procedures for the treatment of neurogenic sphincteric incontinence. *Journal of Urology* 161:272-274.

Becker MH, Haefner DP, Kasl SV, Kirscht JP, Maiman LA, Rosenstock IM. (1977). Selected psychosocial models and correlates of individual health related behaviours. Med Care 15: 27 - 46.

Behrman R.E., Kilegman R.M. Jeson H.B. (2000) Nelson Textbook of Paediatrics. Philadephia Pennsylvania: W B Saunders Co page 1642.

Bhatia MS, Nigam VR, Bohra N, Malik SC. (1991). Attention deficit disorder with hyperactivity among paediatric outpatients. *Journal Child Psychol Psychiatry* 32:297-306.

Bollard J, Nettelbeck T. (1981). A comparison of dry-bed training and standard urine-alarm conditioning treatment of childhood bedwetting. *Behav Res Ther* 19:215-226.

Bollard J. (1982). A 2-year follow-up of bedwetters treated by dry-bed training and standard conditioning. *Behav Res Ther* 20:571-580.

Bollard J, Nettelbeck T. (1982). A component analysis of dry-bed training for treatment for bedwetting. *Behav Res Ther* 20:383-390.

Bollard J, Nettelbeck T, Roxbee L. (1982). Dry-bed training for childhood bedwetting: a comparison of group with individually administered parent instruction. *Behav Res Ther* 20:209-217.

Bollard Jeffrey, and Ted Nettelbeck (1989) Bed-wetting: A treatment manual for profession staff. Chapman and Hall page 3.

Bower WF, Moore KH, Shepherd RB, Adams RD. (1996). The epidemiology of childhood enuresis in Australia. *British Journal of Urology* 78:602-606.

Butler RJ, Brewin CR, Forsythe WI. (1986). Maternal attributions and tolerance for nocturnal enuresis. *Behav Res Ther* 24:307-312.

Butler RJ, Brewin CR, Forsythe WI. (1988). A comparison of two approaches to the treatment of nocturnal enuresis and the prediction of effectiveness using pre-treatment variables. *Journal Child Psychol Psychiatry* 29:501-509.

Butler R, Holland P, Devitt H, Hiley E, Roberts G Redfern E. (1998). The effectiveness of desmopressin in the treatment of childhood nocturnal enuresis: predicting response using pretreatment variables. *British Journal Urology 81 Suppl* 3:29-36.

Butler RJ, Golsworthy MJ, Rijsdijk F, Plomin R. (2001). Genetic and gender influences on nocturnal bladder control--a study of 2900 3-year-old twin pairs. *Scandinavian Journal Urology Nephrol* 35:177-183.

Butler RJ. (2001). Impact of nocturnal enuresis on children and young people. *Scandinavian Journal of Urology Nephrol* 35:169-176.

Butler RJ, Robinson JC, Holland P, Doherty-Williams D. (2004). An exploration of outcome criteria in nocturnal enuresis treatment. *Scandinavian Journal of Urology Nephrol 38*:196-206.

Butler RJ, Golding J, Northstone K. (2005). Nocturnal enuresis at 7.5 years old: prevalence and analysis of clinical signs. *British Journal of Urology Int 96*:404-410.

Can Gamze, Murat Topbas, Aysenur Okten and Melahat Kizil (2004) Child abuse as a result enuresis. Paediatrics international vol 46 page 64

Cederblad M. (1968). A child psychiatric study on Sudanese Arab children. *Acta Psychiatr Scand Suppl 200*:1-230.

Cederblad M, Rahim SI. (1986). Epidemiology of nocturnal enuresis in a part of Khartoum, Sudan. II. The intensive study. *Acta Paediatr Scand 75*:1021-1027.

Chandra M. (1998). Nocturnal enuresis in children. *Curr Opin Pediatr 10*:167-173.

Chang P, Chen WJ, Tsai WY, Chiu YN. (2001). An epidemiological study of nocturnal enuresis in Taiwanese children. *British Journal of Urology Int 87*:678-681.

Cher TW, Lin GJ, Hsu KH. (2002). Prevalence of nocturnal enuresis and associated familial factors in primary school children in Taiwan. *Journal of Urology 168*:1142-1146.

Chiozza ML, Bernardinelli L, Caione P, Del Gado R, Ferrara P, Giorgi PL, Montomoli C, Rottoli A, Vertucci P. (1998). An Italian epidemiological

multicentre study of nocturnal enuresis. *British Journal of Urology* 81 *Suppl 3*:86-89.

Christiani K, Siebert R, Volker B. (1977). [Electroencephalographic examinations in emotionally disturbed children and adolescents (author's transl)]. *Fortschr Neurol Psychiatr Grenzgeb* 45:321-330.

Cohen Robert, Hearth Jorome J (1967) Student Psychiatry Today. A comprehensive Textbook 2nd Ed. Butter Worth Heinemann, page 316-318.

Cohen MW. (1975). Symposium on behavioral pediatrics. Enuresis. *Pediatr Clinical North Am* 22:545-560.

Collins RW. (1973). Importance of the bladder-cue buzzer contingency in the conditioning treatment for enuresis. *Journal of Abnorm Psychol* 82:299-308.

Collins KJ, Exton-Smith AN, James MH, Oliver DJ. (1980). Functional changes in autonomic nervous responses with ageing. *Age Ageing* 9:17-24.

Cooper C. (1974). Letter: Imipramine, sleep, and enuresis. *Jama* 228:569.

Crinunins CR, Rathbun SR, Husmann DA. (2003). Management of urinary incontinence and nocturnal enuresis in attention-deficit hyperactivity disorder. *Journal of Urology* 170:1347-1350.

DeJonge GA. (1973). Epidemiology of Enuresis: A survey of the literature. In: Kolvin I, MacKeith RC, Meadow SR, eds. *Bladder Control and Enuresis*. Philadelphia: Lippincott.

Devlin JB. (1991). Prevalence and risk factors for childhood nocturnal enuresis. *Ir Medical Journal* 84:118-120.

Dimitriou E, Kontas K, Logothetis J. (1976). Relationship between parental attitude towards the emotionally disturbed child and nocturnal enuresis. *Behav Neuropsychiatry* 8:76-77.

Dischie S. (1988). Enuresis in children. *Arch Dis Child* 63:225-226.

Doleys D and well. K (1975) change in functional capacity and bedwetting during and after retention control training. A case study. Behavioural Therapy vol 6 pages 685-688

Doleys, D.M (1977) Behavioural task concept lippin cott JB CO USA pages 27-39

Douglas JW. (1970). Broken families and child behaviour. *Journal R Coll Physicians Lond* 4:203-210.

Duvall EM. (1954). Implications of the developmental task for counseling. IV. *W'st Journal of Surg Obstet Gynecol* 62:543-549.

Elder JS. (2000). Voiding dysfunction: nocturnal enuresis. In: Behrman RE, Kliegman RM, Jenson HB, eds. *Nelson Textbook of Pediatrics*. Philadelphia, Pennsylvania: W. B. Saunders Company. pp 1642-1643.

Erikson EH. (1963). *Childhood and society: Eight stages of man*. New York: Norton W. W Inc. N. Y.

Evans JH, Collier J, Crook I, Garrud P, Harris P, MacKinlay DR, Redsell SA. 1998. Using multimedia for patient information--a program about nocturnal enuresis. *British Journal of Urology 81 Suppl 3*:120-122.

Fava G. Cracco L; (1981) Positive reinforcement and Enuresis Italian Journal of psychiatry Icon. vol 8 pages 149-152

Fergusson DM, Horwood LJ, Shannon FT. (1986). Factors related to the age of attainment of nocturnal bladder control: an 8-year longitudinal study. *Pediatrics* 78:884-890.

Foxman B, Valdez RB, Brook RH. (1986). Childhood enuresis: prevalence, perceived impact, and prescribed treatments. *Pediatrics* 77:482-487.

Frude (1998) Understanding Abnormal psycology Black well Oxford UK page, 25-26.

Garber KM. (1996). Enuresis: an update on diagnosis and management. *Journal of Pediatr Health Care* 10:202-208.

Glicklich LB. (1951). An historical account of enuresis. *Pediatrics* 8:859-876.

Goin RP. (1998). Nocturnal enuresis in children. *Child Care Health Dev* 24:277-288.

Gur E, Turhan P, Can G, Akkus S, Sever L, Guzeloz S, Cifcili S, Arvas A. (2004). Enuresis: prevalence, risk factors and urinary pathology among school children in Istanbul, Turkey. *Pediatr Int* 46:58-63.

Gumu Scedil B, Vurgun N, Lekili M. (2004) Prevalence of Nocturnal enuresis and accompanyiog factors in children age 7-11 years in turkey. *Urology international* vol 73 page 155

Gwen Hartrick (1998). Developing Health Promoting Practice. A Transformative Process. *Nursing Outlook* Sep/Oct Vol 46 5 P. 219.

Halpern WI. (1977). The treatment of encopretic children. *Journal of American Acad Child Psychiatry* 16:478-499.

Harari M. (1999). Nocturnal enuresis (bed wetting). *Aust Fam Physician* 28:171.

Haque,MEllerstein, N.S. Gundy, J.H. Shelov. S.P. Weiss, J.CMcintire. M.S. Olness, K.N. Jones, D.J. Heagarty, M.C and starfield, B.H. (1981) Parental perceptions of enuresis. A collaborative study. Archives of padiatrics & Adolescent Medicine vol 135 no 9, Sept page 3

Hansson S. Urinary incontinence in children and associated problems. Scand J Urol Nephrol. 1992; 26 suppl 141:47-55

Hirasing RA. Reus H. (1991). [Dry bed training in nocturnal enuresis]. *Ned Tijdschr Geneeskd* 135:1750-1753.

Hjalmas K. (1997). Pathophysiology and impact of nocturnal enuresis. *Acta Paediatr* 86:919-922.

Horstmanshoff BE, Regterschot GJ, Nieuwenhuis EE, Benninga MA, Verwijs W, Waelkens JJ. (2003). [Bladder control in 1-4 year old children in the Eindhoven and Kempen region (The Netherlands) in 1996 and 1966]. *Ned Tijdschr Geneeskd* 147:27-31.

Johnson M. (1998). Nocturnal enuresis. *Urol Nurs* 18:259-273; quiz 274-255.

Kalo BB, Bella H. (1996). Enuresis: prevalence and associated factors among primary school children in Saudi Arabia. *Acta Paediatr* 85:1217-1222.

Kanaheswari Y. (2003). Epidemiology of childhood nocturnal enuresis in Malaysia. *Journal of Paediatr Child Health* 39:118-123.

Kawauchi A, Imada N, Tanaka Y, Minami M, Watanabe H, Shirakawa S. (1998). Changes in the structure of sleep spindles and delta waves on electroencephalography in patients with nocturnal enuresis. *British Journal of Urology 81 Suppl 3*:72-75.

Kibel HD. (1991). Group psychotherapy for the chronic mentally ill. *Int Journal Group Psychother 11*:3-9.

Kirk J, Rasmussen PV, Rittig S, Djurhuus JC. (1996). Provoked enuresis-like episodes in healthy children 7 to 12 years old. *Journal of Urology 156*:210-213.

Koff SA. (1983) Estimating Bladder capacity in children. Urology 21(3): 248

Kohlenberg, R. I. (973)" operant conditioning of human anal sphincter pressure" Journal of applied behaviour analysis. Vol 6 page 201-208.

Latham CE. (1998). Professional platitudes, latitudes, and attitudes. *Annu Journal 25*:280.

Levene, Malcolm I, Jolly's (1991). Disease of Children 6th Edition Edited by Levene M.I. Pp 26-27, 349-

Loening-Beuke V. (1997) Urinary incotinence and urinary tract infection and their resolution with treatment of chronic constipation in childhood. Pediatrics vol 100 no 2, page 228-232.

Lovibond SH. (1963). Intermittent Reinforcement in Behavior Therapy. *Behav Res Ther 19*:127-132.

Lovibond SH. (1972). Critique of Turner, Young and Rachman's conditioning treatment of enuresis. *Behav Res Ther* 10:287-289.

Lunsing RJ, Hadders-Algra M. Touwen BC. Huisjes HJ. (1991). Nocturnal enuresis and minor neurological dysfunction at 12 years: a follow-up study. *Dev Med Child Neurol* 33:439-445.

Maizels, Max and Rosenbaum (1982) "when potty-training goes awry centre to assist the regulations of Enuresis (C.A.R.E) *Journal of Urology* (Urodynamics) April page 49.

Maloney E (1977) Theoretical approaches chapter 3 pages 68.

Mithani S, Zaidi Z. (2005). Bed wetting in school children of Karachi. *Journal of Pak Med Assoc* 55:2-5.

Moffatt ME. (1997). Nocturnal enuresis: a review of the efficacy of treatments and practical advice for clinicians. *Journal Dev Behav Pediatr* 18:49-56.

Moilanen I, Rantakallio P. (1988). The single parent family and the child's mental health. *Soc Sci Med* 27:181-186.

National Population Census (1991). Federal Republic of Nigeria Official Gazzette. April 1997. Vol 84 No 25 Pg 68

Neveus T, Hetta J, Cnattingius S, Tuvemo T, Lackgren G, Olsson U, Stenberg A. (1999). Depth of sleep and sleep habits among enuretic and incontinent children. *Acta Paediatr* 88:748-752.

Neveus T. (2003). The role of sleep and arousal in nocturnal enuresis. *Acta Paediatr* 92:1118-1123.

Nowak KC. Weider DJ. (1998). Pediatric nocturnal enuresis secondary to airway obstruction from cleft palate repair. *Clin Pediatr (Phila)* 37:653-657.

Obi JO. (1977). Enuresis in Nigerian Children as seen in Benin city. *African Journal of Psychiatry* 1-2:65.

Obodigbo GC, Nweke CC. (1998). Enuresis among Nigeria secondary school students in Anambra State of Nigeria. *Nigerian Journal of management and social science* 2:65.

Omigbodun OO. (2004). Psychosocial issues in a child and adolescent psychiauic clinic population in Nigeria. *Soc Psychiatry Epidemiol* 39:667-672.

Oppel WC. Harper PA, Rider RV. (1968). The age of attaining bladder control. *Pediatrics* 42:614-626.

O'Regan S, Yazbeck S, Hamberger B. Schick E. (1986). Constipation a commonly unrecognized cause of enuresis. *American Journal Dis of Child* 140:260-261.

Osungbade KO. Oshiname FO. (2003). Prevalence and perception of nocturnal enuresis in children of a rural community in southwestern Nigeria. *Trop Doct* 33:234-236.

Paris J. (1998). Personality disorders in sociocultural perspective. *Journal Personal Disord* 12:289-301.

Petrican P. Sawan MA. (1998). Design of a miniaturized ultrasonic bladder volume monitor and subsequent preliminary evaluation on 41 enuretic patients. *Trans Rehabil Eng* 6:66-74.

Podnar S, Trsinar B, Vodusek DB. (1999). Neurophysiological study of primary nocturnal enuresis. *Neurourol Urodyn* 18:93-98.

Pugner K, Holmes J. (1997). Nocturnal enuresis: economic impacts and self-esteem preliminary research results. *Scand Journal Urology Nephrol Suppl* 183:65-69.

Ramsden, P.D (1976) "Distension throupy for the unstable Bladder: later result including an assessment of repeat distention" *British Journal of Urology* Vol 48 page 623-629

Rasmussen PV, Kirk J, Rittig S, Djurhuus JC. (1997). The enuretic episode--a complete micturition from a bladder with normal capacity? A critical reappraisal of the definition. *Scand J Urol Nephrol Suppl* 183:23-24.

Riley KE. (1997). Evaluation and management of primary nocturnal enuresis. *Journal American Acad Nurse Pract* 9:33-39; quiz 40-31.

Rittig S, Knudsen UB, Norgaard JP, Pedersen EB, Djurhuus JC. (1989). Abnormal diurnal rhythm of plasma vasopressin and urinary output in patients with enuresis. *American Journal of Physiol* 256:F664-671.

Robson WL, Jackson HP, Blackhurst D, Leung AK. (1997) Enuresis in children with attention deficit hyperactivity disorder. South Med J. 90 (5): 503-505

Rona RJ, Li L, Chinn S. (1997). Determinants of nocturnal enuresis in England and Scotland in the '90s. *Dev Med Child Neurol* 39:677-681.

Rosenstock IM, Stiecher VJ, Becker MH. (1988). Social learning theory and the Health Belief Model. Health Educ. Q 15:175 - 183.

Ross and Wilson (1982) The urinary system foundation of anatomy and physiology. 5th edition, Churchhill livingstone page 149.

Rutter M, Hersov L. (1985). Influences on development child and adolescent psychiatry. Oxford: Blackwell Scientific Presentation. pp 240.

Schulpen TW. (1997). The burden of nocturnal enuresis. *Acta Paediatr* 86:981-984.

Serel TA, Akhan G, Koyuncuoglu HR, Ozturk A, Dogruer K, Unal S, Celik K. (1997). Epidemiology of enuresis in Turkish children. *Scand Journal Urol Nephrol 31*:537-539.

Serel TA, Perk H, Koyuncuoglu HR, Kosar A, Celik K, Deniz N. (2001). Acupuncture therapy in the management of persistent primary nocturnal enuresis--preliminiuy results. *Scand Journal of Urology Nephrol* 35:40-43.

Shaffer D. (1973). The association between enuresis and emotional disorders: A review of literature. In: Kolvin RC, MacKeith RC, Meadow R, eds. *Bladder control and enuresis*. Philadephia: Lippincott.

Singh H, Kaur L, Kataria SP. (1991). Enuresis: analysis of 100 cases. *Indian Pediatr 28*:375-380.

Stein Z, Susser M. (1967). Social factors in the development of sphincter control. *Dev Med Child Neurol* 9:692-706.

Stein MT, Alagiri M, Kohen DP. (1998). Diurnal and nocturnal enuresis in a 6 year old. *Journal of Dev Behav Pediatr 19*:105-108.

Tanaka Y, Kawauchi A, Yoneda K, Naitoh Y, Yamao Y, Iwasaki H, Mizutani Y, Miki T. (2003). Vesicoureteral reflux detected among patients with nocturnal enuresis. *Eur Urol 43*:80-83.

Verhulst FC, van der Lee JH, Akkerhuis GW, Sanders-Woudstra JA, Donkhorst ID. (1985a). [Prevalence of enuresis in 4-to-16-year-old children: an epidemiological study]. *Ned Tijdschr Geneeskd 129*:2260-2263.

Verhulst FC, van der Lee JH, Akkerhuis GW, Sanders-Woudstra JA, Timmer FC, Donkhorst ID. (1985b). The prevalence of nocturnal enuresis: do DSM III criteria need to be changed? A brief research report. *Journal of Child Psychol Psychiatry 26*:989-993.

von Gontard A. (2004). [Psychological and psychiatric aspects of nocturnal enuresis and functional urinary incontinence]. *Urologe A 43*:787-794.

Wagner WG, Smith D, Norris WR. (1988). The psychological adjustment of enuretic children: a comparison of two types. *J Pediatr Psychol 13*:33-38.

Warzak WJ. (1993). Psychosocial implications of nocturnal enuresis. *Clin Pediatr (Phila) Spec No*:38-40.

Yakinci C, Mungen B, Dunnaz Y, Balbay D, Karabiber H. (1997). Autonomic nervous system functions in children with nocturnal enuresis. *Brain Dev 19*:485-487.

Yeung CK. (1997). Nocturnal enuresis in Hong Kong: different Chinese phenotypes. *Scand J Urol Nephrol Suppl 183*:17-21.

APPENDIX A

RESPONDENTS

I am a student in Health Promotion and Education of the University of Ibadan, I am conducting a research on the Existence of Nocturnal Enuresis among children aged 5 and 12 years old in Idikan Community of Ibadan North West Local Government.

I seek your indulgence in giving the sincere answer and I promise that information given will be treated with utmost confidentiality. Your full cooperation will be highly appreciated.

Thank you

1. Age of respondent _____
   Kini ojo ori re

2. Gender of respondent 1. Male 2. Female
   Okunrin tabi obinrin ni e? 1. Okunrin 2. Obinrin

3. Respondent' Marital Status
   E wo loba yi mu?
   a. Single
   b. Married
   e. Divorced
   d. Widow/Widower

4. What is your occupation?
   Ise wo lon se?

5. Respondent's level of education
   Oti ka iwe melo?
   a. No formal educaton
   b. Primary School
   c. Post-primary but not complete secondary
   d. Secondary School
   e. Tertiary
   f. Others

6. Do you have a child above 5 years who is still bedwetting at night?
   Oni omo o ti o'n to le a. Yes b. No

7. If yes, how many are they? _____
   Melo ni won?

8. What is their position among your children?
Ipo kelo lomo nan? BOY GIRL
a. 1st
b. 2nd
c. 3rd
d. 4th
e. 5th
f. 6th
g. 7th

9. How many children are in this house? _____
Awon omo inclo lo wa ni ile yi?

10. Who are you to these/ this child (ren)?
Bawo wo leje si omoyi.
a. Mother
b. Father
c. Uncle
d. Forster parent
e. Grandparent
f. Aunty
g. Sister/ Brother

11. If parents. are they living together? a. Yes b. No
Nje awon obu ngbe po? a. Beni b. Beko

12. Do you consider bed wetting after age of 5 years a problem a. Yes
b. No
Nje o ri wipe atole ye ohun ti lewu fun omo ti koja odun marun?

13. Do you think it is a thing of shame for the family if a child or more are bedwetting after the age of 5 years? a. Yes b. No
Nje o rounpe to le nje nko itiju fun o bi omo ti o ba nto sile

14. Do you think bedwetting is preventable a. Yes b. No
Nje o se se ki omo ma to le

15. Do you think bedwetting is curable a. Yes b. No
Nje o ro wipe aisan ti ose wo ni? a. Beni b. Beko

16. Why do you think bedwetting is a problem? _____
Kini efi ro wipe atole je isoro? _____

17. Would you like to discuss your enuretic child's condition with the health worker?
Nje e fe ba awon oni ise lelera nipa atole omo?
a. Yes b. No

18. Did you experience bedwetting as a child? a. Yes b. No
Nje o to sile ru omode? a. Beni b. Beko

SECTION B

CHILDREN: (To be filled for each enuretic child) Ni pa tomode

1. Child's Age (years)_____
omo doun melo?

2. Gender 1. Male 2. Female
Eya? 1. Okunrin 2. Obinrin

3. What class is the child at school?_____
Eko kelo ru ile iwe?_____

4. How many elder or sisters has he/ she?_____
Egbon melo lo omo ni,

5. How many juniors has he/she?
Aburo melo lo omo ni

SECTION C:

1. How often does your child bed-wet?
E melo lo ma n to le
a. In a night / Ni ale
b. In a week / Ni ose
c. n a month / Ni osu?

2. Why do you think he/she bed wet?
Ki lo fa ti omo fi nto sile?

3. How do you feel when you find the bed wet? _____
Bawo ni o se rii fi omo bato?_____

4. What reaction do you often observe in him/her when he or she wet?
Kini o ma nri lara re ti o ba ti to?
a. Nothing / Rara
b. Starts the day unhappy / Bere ojo pelu ibanuje

c. Slow to wake up / Lora lati dide
d. Allows others to leave / Je ki awon yoku koko dide
e. He/she quickly removes all bedding before other are aware / Yare ko aso ito ki awon yoku to mo.
f. Others (Specify) Nkan miran.

5. What do you do to the child whenever you find the bed wet?
Kini o nse fun omo ti o ba ri pe o to sile
a. Nothing / Ko si nkankan
b. Abuse / Ebu
c. Beat / Na
d. I call him bed names / Mo pe ni oruko ti ko dara
e. Ridicule/ tease him/her / Fi se yeye
f. Forced to do the washing of the linen / Fipe mu ki o fo siso ito
g. Tell his friend when he/she is naughty / Fi se yeye larin awon ore re
h. Others (Specify) Nkan Miran

6. Why do you adopt the above measure(s)
Kini o ti se fun awon nkan wonyi?

7. What have you done to stop your child form bed wetting?
Kini o ti se lati ma je ki omo to sile mo?

8. What do you consider to be the cause of bedwetting?
Ki lo ro wipe o le fa ki eniyan maa to'le

9. What do you consider to be the long term course/ effect of enuresis?
Kini o le so nipa awon nkan ti o le sele ki eniyan ba nto'le?

10. Do you have any other comment?
Nje o ni nkan miran lati fi e afikun?

APPENDIX B

FOCUS GROUP DISCUSSION (FGD) GUIDE

Good Morning Mothers/Fathers. How are our children and husbands/wives?

I am Mrs Kuforiji, I am student in PSM U.C.H a nurse by profession. My assistant is Mrs Sofela who is going to record the discussion. with your permission, is a student in the depar|ment of Nursing, also a nurse.

We are here today to find out from you more about bed wetting at night. its methods of management and the implication of the problem on the children with the hope of introducing ways of its control and management. Please feel free to make your contribution. All the information will be confidentially treated. I wish you all introduce yourselves one after the other starting from my immediate right ma/sir.

1. (a) What do you understand by enuresis? (Bed wetting at night)
   Kini o mo nipa atole?
2. How long can a child continue to bed wet before we can see it as a problem?
   Igba wo ni omo kekere le to sile da ki a to mo aisan?
3. Have you experienced it before?
   Nje o se o ri?
4. What are the various methods of controlling (enuresis) Bed wetting at night?
   Ona wo ni a le fi da itole duro?
5. Which is the most effective methods and why?
   Ewo tabi ona wo ni o daju?

6. What are the implications of persistent bed wetting to boys and to girls of school age?
   Kini abuku tabi abode itosile fun awon omo ile-iwe lokunrin ati lobinrin?
7. What do parents do when they have (enuresis) children that bed wet at night?
   Kini ojuse obi ti omo re nto sile?
8. What do you feel is responsible for prolonged bed wetting?
   Kini o fa ki omo ma to sile lai dekun?

APPENDIX C

FOCUS GROUP DISCUSSION GUIDE FOR CHILDREN

How are you children? I am Mrs B.N Kuforiji, A nurse by profession. I am a student from the Preventive and Social Medicine U.I. Ibadan. I am here with my colleagues to ask you few questions about bed wetting at night. We shall be grateful if we all feel free and relaxed to participate, answer few questions and ask you questions about bed wetting at night. You are allowed to express your opinion where necessary in either English or Yoruba. One ofus will tape our discussion. The time keeper will tell us who and when you are to speak and for how long.

1. What did you understand by bed wetting at night?

   Ki lonje antole?

2. Why do you think you wet bed at night?

   Ki lo fa ti ofin tole?

3. What are the reactions of your parents when you bed wet?

   Ki ni obi re nse fun re ni oba nto le?

4. How do you feel when you wet bed?

   Bawo ni okan re se ri ni gba ti o ba to le?

5. What problem do you encounter because of bed wetting?

   Idiwo wo ni okan re nse ri nigba ti o ba to le?

6. Have you tried to stop bedwetting?

   Oti gbiyanju lati da tole duro?

7. Tell me your experiences about bed wetting?

So fun mi irire,nipa ito ile re?

APPENDIX D

KEY IN-DEPTH INTERVIEW GUIDE

Good morning Sir/Ma. How are you? I am Mrs B.N Kuforiji a student from the Preventive and Social Medicine U.C.H. Ibadan. I am a nurse by profession. I am glad that you have given us the audience in the quest for ways at which problem of bed wetting can be controlled and managed better.

My assistant is Mrs Sofela a nurse who is going to record the interview with your permission. Every information is confidentially treated. We shall be very grateful if you can freely express yourself.

1 How many of your children/wards are bed wetting?

Awon mo yin melo lo ntole?

2 What are their ages?

Kini ojo ori won?

3 How frequent does each child bed wet?

Igba melo ni o nto sile kile to mo?

4 Which of them wet more than the other?

Ewo ninu won ni o ntosile ju?

5 What is his/her age?

Kini ojo ori won?

6 Since when has he/she been bedwetting?

Lati igba wo lo ti ntole?

7 Are there period at which the bedwetting is more?

Asiko wo ni o maa npoju?

8. What are your experiences about bedwetting?

Kini iriri re nipa titole?

9. What are the problems that you face as a result of the behaviour?

Kini isoroti o ni nipa titole yi?

10. As a mother what are the ways you have tried to address the problem?

Gege bi obi, kini e se si oro na?

11. What is the outcome of your effort?

Kini abo igbiyanju re?

12. What is the most effective way of controlling bedwetting at night?

Ona wo ni o daraju lati fe da titole duro?

13. How do you feel when he/she wet bed?

Bawo ni oka re se rii nigbati ono ba ntolesile?

14. How does the child feel after wetting bed?

Bawo ni omo naa se nse nigbati o ba to le?

15. Are you willing to receive help from health care providers?

Se o fe imoran nipa itoju omo to n to sile lati owo awon ilera?

APPENDIX D

BED WETTING

Tick Yes/No

If you have	Yes	No
Bedwetting child	☐	☐
Or relation		

UNIVERSITY OF IBADAN

African Regional Health Education Centre
Sub-Department of Health Promotion and Education
Department of Preventive and Social Medicine

COLLEGE OF MEDICINE

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ayeop@nga.healthnet.org

21st October, 1999

TO WHOM IT MAY CONCERN

LETTER OF INTRODUCTION AND APPEAL FOR ASSISTANCE

I write to introduce Mrs. B.N. Kuforiji, one of our MPH (Health Education) students to you. She is carrying out a research on "Baseline study on Enuritic Children in Ibadan Schools".

Kindly give her the needed assistance.

Yours sincerely,

Dr. I.O. Olaseha,
Supervisor.

LANDUSE ANALYSIS

S/N	LANDUSE	AREA IN KM²	% COVER	COLOUR
1	RESIDENTIAL	18·83	60·0	
2	INDUSTRIAL	0·63	2·0	
3	COMMERCIAL	0·31	1·0	
4	AGRICULTURAL	3·14	10·0	
5	OPEN-SPACES	0·63	2·0	
6	GOVT ACQUISITION	5·64	18·0	
7	WATER BODY	0·63	2·0	
8	PUBLIC/SEMI-PUB.	0·96	3·0	
	TOTAL	31·38	100·00	

DATE
OCTOBER 1995

N

SCALE:

Moko

Mokola Round-about

Sabo Rd.

Elizabeth Rd.

Total Petrol Station

NITEL

Oke Sapati

Adamasingba Rd

Texaco Petrol Station

Inalende

Oniyanrin

Abebi

Opo To Feleye Road

Orita Merin

N.W. 3

Idikan Clinic To Ogunpa

Idikan Baptist Church

U.C.H Dental Clinic

Small Rd To P.S.M Clinic Idikan

Ladupo St

Stream

Oke Seni