Journal of Community Medicine and Primary Health Care. 29 (1) 55-61

JOURNAL OF COMMUNITY MEDICINE AND PRIMARY HEALTH CARE

Treatment Options for Primary Nocturnal Enuresis by Parents in a Nigerian Community

Iduoriyekemwen N.J[1]., Nwaneri D.U[2]

[1]Department of Child Health, University of Benin/ University of Benin Teaching Hospital, P.M.B. 1111, Benin City, Nigeria.
[2]Institute of Child Health, University of Benin/ University of Benin Teaching Hospital, P.M.B. 1111, Benin City, Nigeria.

Key words:

Primary nocturnal enuresis,

Treatment option,

Children

ABSTRACT

Background: Primary nocturnal enuresis is a common childhood condition that affects children of all cultures worldwide. Effective treatments for primary nocturnal enuresis are readily available in Nigeria; however, some studies reveal that majority of sufferers are not taken for medical consultation as a treatment option.

Objective: To determine the treatment options undertaken by Nigerian parents for primary nocturnal enuresis.

Methodology: Self-administered semi-structured questionnaire, completed by parents of children in public primary and secondary schools in Egor local government area, Edo State.

Results: Of the 228 children with primary nocturnal enuresis, majority of their parents 180 (79.0%) had employed various treatment options in attempting to achieve dryness in their children. The most common treatment option was waking up child at intervals during the night to void by 103 (45.2%) parents, punishment (which comprised of shaming, flogging and verbal insults) employed by 61 (26.8%) parents and traditional medication by 18 (7.9%) parents. Only 35 (15.4%) sought medical treatment for their children. Amongst these children, majority had severe nocturnal enuresis and a positive family history of enuresis.

Conclusion: Treatment of primary nocturnal enuresis is largely by families using simple behavioral measures, punitive measures and unorthodox medications. Medical treatment was not sought by majority of the parents because of their belief that bedwetting is a natural childhood process that would spontaneously resolve. These findings reveal the need to enlighten Nigerian parents about nocturnal enuresis; its treatment and the importance of and when to seek medical help.

Correspondence to:
Iduoriyekemwen N. J.
Department of Child Health,
University of Benin/ University of Benin Teaching Hospital,
P.M.B. 1111, Benin City, Nigeria.
E-mail : nosaiduos2006@yahoo.com
Phone number: +2348023287095

INTRODUCTION

Nocturnal enuresis (NE) is a common childhood condition which has been documented to occur in all cultures and race worldwide.[1] In Nigeria, prevalence varies from 6.7- 40.0% [2-11] depending on various geographical locations, study design and sample size used for the studies.

Nocturnal enuresis is classified as primary nocturnal enuresis (PNE) based on absence of dryness since birth. However, if a child had attained dryness for at least 6months or longer but begins to wet again he or she is classified as secondary nocturnal enuresis (SNE).[1] PNE is the commonest type of NE, reported to be present in 90% of children with NE in some studies.[1,6]

Effective treatments are available for primary nocturnal enuresis, and the current internationally acceptable approach has evolved over time.[12] It consists of the pharmacological and non-pharmacological measures.[1] The latter includes patient/family education, simple behavioral interventions (waking child up to void, fluid restriction, ensuring the child voids before bedtime, motivational therapy such as rewarding child when dry) and the alarm therapy. Non-pharmacological measure is instituted as first line. When dryness is not achieved following long term application or if parent and/or child are not motivated to comply

with these measures, pharmacological measures are commenced.

Despite the anxiety experience by parents and children regarding childhood nocturnal enuresis [13,14] and the large burden of the condition in Nigeria [2-11], the literature provides evidence that many caregivers of suffers do not seek care in health facilities.[2,3,8,10] Lacking from these studies are the reasons why medical treatment options for nocturnal enuresis are neglected. This study was therefore, carried out to determine the treatment options parents of children who had primary nocturnal enuresis were employing in managing their children's condition and to ascertain reasons why medical help is not being sought.

SUBJECTS AND METHODS

Study setting and subject selection: This descriptive cross-sectional study is part of a larger questionnaire based study on socio-demographic characteristics of primary nocturnal enuresis 15 which was carried out in public primary and secondary schools in Egor Local Government Area (LGA) of Edo State, Nigeria. Subjects were the children of the public primary and secondary schools in Egor (LGA) and their parents. Only children from public schools were employed in the study.

The schools were selected as follows; List of the registered primary and secondary schools in the Local Government was obtained from the Local Government Education Authority. Altogether, there were 17 registered public (government owned) primary schools and 12 secondary schools. Thirty percent of the schools (primary and secondary each) were selected from the list by balloting using the simple random techniques. These comprised of 7 primary schools (5 from urban and 2 from rural) with the identifications as A, B, C, D, E, F and G; and 4 secondary schools (3 from urban and 1 rural) with identifications A1, A2, A3, and A4. A total sample of all the students in each of the selected schools was recruited in the pool of study participants which was 2500 students. Of these, 1800 (72.0%) parents gave written informed consent to participate in the study, of these 1221 had complete analyzable data. At the initial analysis of the completed eligible questionnaire, 228 of the 1221 children had PNE and were recruited into the final data analysis for this study.

Ethical considerations: Ethical certificate for this study was obtained from the Research and Ethics Committee of College of Medical Science University of Benin. Permission was sought from the Ministry of Education, the Head-persons of each primary school and the Principals of each secondary school. Written informed consent form was given to each child to deliver to their parents at the first visit to the schools. Any child whose parents signed the written informed consent form was recruited in the study.

Data collection and evaluation

The instrument was a pre-tested self-administered questionnaire, distributed to all the parents by their children. Aspects of the questionnaire relevant to this study include child's demographic characteristics - age and gender. Information sought regarding the child's enuretic characteristics included, presence of nocturnal enuresis, onset of nocturnal enuresis which was used to determine if the children had primary nocturnal enuresis or secondary nocturnal enuresis,[1] frequency of nocturnal enuresis, family history of enuresis, treatment option(s) that has been utilized to stop bed wetting and the reason for not seeking medical care where applicable.

The severity of bed wetting was classified based on the frequency of nocturnal bedwetting.[16] If a child bed wets only once in a week or 1-2 times in a month he or she was classified as having mild nocturnal enuresis, if bedwetting occurred greater than 2 times in a week, it was classified as moderate nocturnal enuresis and if the child wets every night it was classified as severe nocturnal enuresis.

Parental information sought in the questionnaires were the mother's level of education and occupation as well as the father's level of education and occupation. They were used to determine the social class of the child's family by the method

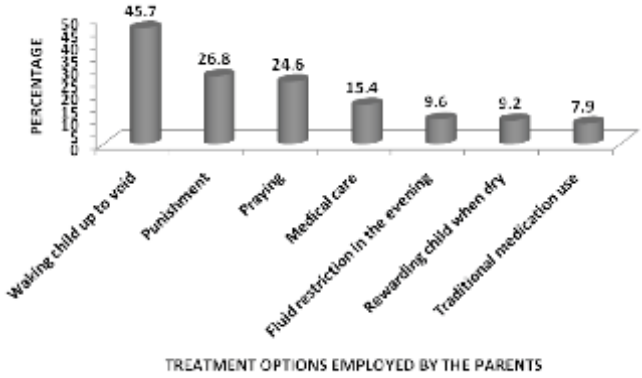
described by Olusanya, Ezimokhai and Okpere.17

Data analysis: The data collected was entered into IBM Statistical Package for Social Sciences (SPSS) version 20.0 (Inc Chicago, Illinois, USA) and were analyzed using the same software. Continuous variables were summarized using means and standard deviations and comparisons of proportions were done accordingly. The significance of association between variables was tested using Chi-square tests while Independent –T test was used for comparison of means. The level of significance of each test was set at $p < 0.05$.

RESULTS

Of the 228 children with PNE; mean [±] age 11.4 ± 2.4 years, 85 (37.3%) were males and 143 (62.7%) female. The majority of the enuretic children were from the middle socioeconomic class 133 (58.3%), while 82(35.9%) and 13(5.6%) were from the lower socioeconomic class and upper socioeconomic class respectively. One quarter of the mothers had primary education 57 (25.0%), 70 (30.7%) had secondary education and 52 (22.8%) had tertiary education. The level of education of the fathers is as follows: primary education 33(14.5%), secondary 70 (30.7%) and tertiary education 66(28.9%). Of note, not all the respondents provided answers to the question on "mother's and father's educational status".

Of the 228 parents whose children were enuretic, majority 180 (79%) had employed various treatment options in attempting to achieve dryness in their children, while 48 (21%) adopted a "wait and see" approach. Eighty nine (49.4%) of the parents used a single treatment option, while 91(50.6%) utilized multiple combinations. Figure 1 shows a bar chart showing the percentage utilization of all the treatment options employed by the parents. The most commonly used option was waking up child at intervals during the night to void by 103 (45.2%) parents. The next method was punishment (which comprised of shaming, flogging and verbal insults) employed by 61 (26.8%) parents. Traditional medication was utilized by 18 (7.9%) parents while only 35 (15.4%) sought medical treatment for their children, which were in combination with other forms of therapy by 23(66.0%).



** There were multiple responses*

Figure 1: The percentage utilization of the treatment options employed by the parents

Table I: Characteristics of Enuretic Children who sought and those who did not seek medical care

Characteristics	Enuretic children who sought medical care n= 35(%)	Enuretic children who did not seek medical care n = 193(%)	P-value
Mean age	11.7±2.1	11.4±2.4	0.489
Gender			
Male	13(37.1)	72(37.3)	1.000
Female	22(62.7)	121(62.7)	
Socioeconomic class			
Upper	2(5.6)	11(5.7)	
Middle	19(54.3)	113(58.5)	0.887
Lower	14(4.0)	69(35.6)	
Severity of enuresis			
Mild	8(22.9)	79(39.4)	
Moderate	10(28.6)	33(17.1)	0.039
Severe	17(48.6)	59(30.6)	
No response	0(0)	22(12.9)	
Family history of enuresis			
Present	22(62.9)	97(50.0)	0.199
Absent	13(37.1)	96(49.7)	

Table I shows the characteristic of enuretic children who sought and those who did not seek medical care. The 35 children that were taken by their parents to consult a medical doctor were aged 8 - 16years with mean age [±] 11.7± 2.1 years. Thirteen (37.1%) were males and majority 19 (54.3%) were from the middle socioeconomic class. The age at which they were taken to seek medical treatment ranged from 3-13years; majority 22 (68.9%) sought help during their early childhood i.e. < 10year. The majority of the children 17 (48.6%) had severe enuresis with bedwetting occurring every night and 22 (62.9%) of the children had a family history of

enuresis. The children of the 193 parents who did not seek medical treatment had a mean age [±] 11.4 ± 2.4. There were 72 (37.3%) males and the majority 113 (58.5%) were from the middle socio-economic class. Most of the children 79 (39.4%) had mild bedwetting and the proportion of those with family history of enuresis 97 (50.3%) was similar to those without a family history 96 (49.7%).

Table II: Characteristics of parents who sought and those who did not seek medical care for their children

Characteristics	Parents who sought medical care n=35(%)	Parents who did not seek medical care n=35(%)	P-value
Mother's level of education			
Primary	7(20.0)	51(26.4)	0.57
Secondary	8(22.9)	62(32.1)	
Tertiary	9(25.7)	42921.8)	
No response	11(31.4)	38(19.7)	
Father's level of education			
Primary	4(11.4)	30(15.5)	0.63
Secondary	7(20.0)	63(32.6)	
Tertiary	10(28.6)	55(28.5)	
No response	14(40.0)	45(23.3)	
Parental concern			
Parental concern			
Yes	23(65.7)	94(48.7)	0.025
No	12(34.3)	99(51.4)	

Table III: Reasons for not seeking medical care by parents

Reasons	Frequency	Percentage
Believe it would stop spontaneously	36	58.1
Afraid of the cost of care	11	17.7
Did not think it was necessary	6	9.8
Ignorant about medical care	5	8.1
Miscellaneous*	4	6.4
Total	**62**	**100**

**No reason, mild frequency, religion, traditional medication use.*

DISCUSSION

In this study, slightly over three quarter of the parents studied were observed to employ various treatment methods either as monotherapy or multiple combination of therapies. Similar to previous studies,[2,3,10] this study also revealed that the options for managing nocturnal enuresis were largely simple behavioral interventions (waking child up to void, fluid restriction, ensuring the child voids before bedtime, rewarding child when dry), punitive measures and traditional medication. Waking child up to void at regular interval at night and fluid restriction in the evenings are the most frequently utilized treatment option. These findings have also been reported by Etuk and colleagues,[2] Anyanwu and colleagues[10] and in many studies from other African,[18] Western[19-22] and far Eastern[23,24] countries. In contrast amongst families in Thailand,[25] ensuring the child voids before bedtime was the most practiced. Although these simple behavioral measures when used alone have scientifically been proven to reduce the frequency of bedwetting and achieve cure rates of 15.0-20.0% in some studies;[26] it is associated with very high non-adherence rates because it requires that parents and child are highly motivated. These measures should therefore be used with other treatment options.

Most worrisome is that punitive measures which comprised shaming, flogging and verbal insults were the second most employed treatment option in this study. However, the percentage of parents who utilized this method was less compared to previous documentation by Anyanwu and colleagues[10] in Nigeria. The practice of punishment as a treatment option for nocturnal enuresis is not restricted to Nigerian families; in the studies by Hazza et al[27] in Jordan, Wong et al[24] in Hong Kong and Bourquia et al[18] in Morocco, 14%, 57% and as high as 85% of their enuretic children respectively, were enduring one form of punitive measure or the other. From the literature,[12] this method of treatment is the most discouraged as it has no scientific basis for achieving cure. It is believed to worsen the bed-wetting condition, more so when it's combined with waking the child up to void, resulting in parental frustration and anger due to lack of sleep. These may propagate further punitive measure to the child by parents/caregivers. This vicious cycle only results in psychological problems for the child such as; low self-esteem, difficulty in making friends, deviant behaviors and disruption of the parent- child bonding.

The least utilized management choice in this study was traditional medication. This finding was similar to the works of Etuk et al[2] in South-east Nigeria but in contrast to that of Osungbade et al[3] who reported as high as 75.0% utilization of traditional medication as a treatment option for nocturnal enuresis in South-west Nigeria. The difference between this study and that of Osungbade et al[3] is

that ours, was carried out in an urban setting while that of Osungbade et al[3] was conducted over 13 years ago in a purely rural community where traditional healing practices abound and rural dwellers strongly believe in them.

This type of treatment option is also widely practiced among Chinese families with varying outcomes.[28] In general, however there are no meta-analytic clinical evidence supporting the role of traditional medication in treatment of NE. In our environment, the efficacy of these traditional or herbal medications which are usually mixtures of concoctions have not been proven and their safeties are unknown. It is possible that chronic use of these concoctions may result in nephrotoxicity; hence their use should be discouraged.

In studies from Nigeria, the finding that only a small proportion of children who had nocturnal enuresis were taken by their parent to seek medical help was also observed in this study. Anyanwu et al[10] (17.5%) reported similar finding in South-eastern Nigeria, however, our study is in contrast to those by Etuk et al[2] (2.1%), 6.8% by Osungbade et al[3] and 0.0% by Senbanjo et al[8] The difference between the high proportion observed in this study compared to the previous reports[2,3,8] in Nigeria is difficult to explain, it may be due to slightly better awareness about nocturnal enuresis as a health problem compared to the previous reports[2,3,8] which dates back over a decade.

In this study, severe bedwetting was the main distinguishing factor between the children whose parents sought medical care for them and those that did not. In addition, positive family history was commoner among those who also sought medical help for their children. Of note, being a member of upper or middle socioeconomic class families and level of education was not significantly associated with parental seeking of medical care for their children. This implies that education and economic empowerment did not play any role in the health seeking behavior of the parents of children studied, rather, parental concern especially about severity of the nocturnal enuresis, parental attitude and previous knowledge about nocturnal enuresis were the factors at play. This can be supported by the study of Hazza et al[27] who reported that Jordanian families showed great concern about bedwetting in their children and over 50.0% of the families studied had sought professional medical help. In addition, in a large population study in France,[28] the authors reported that as high as 66.0% of the mothers whose children had moderate and severe bed wetting sought medical help. Assertion from these studies is that the driving force for seeking medical help is parental concern about the condition.

Parental belief that bedwetting was a natural childhood process which would spontaneously resolve over time was the main reason for not seeking medical help in this study. This also explains why majority of parents in this group were not concerned about their children's enuretic condition. Similar findings have also been reported by other authors.[8,18,30,31]

The fact that PNE would spontaneously resolve with age has been widely documented in the literature.[1,12] However, some authors[32] believe that this appears to be true for the younger child with mild bedwetting who has no daytime symptoms; it therefore means that a "wait and see" approach may be best for these group of children. However, for the older children (>10years) that have severe PNE and daytime symptoms, a consultation with the doctor is warranted, as these children would require extensive evaluation and management, thus must be encourage to seek medical care.

LIMITATION OF STUDY

There was poor response by respondent as regards the question "reason for not taking child to seek medical care" This is one of the disadvantages of a self-administered questionnaire which was utilized in this study.

CONCLUSION

Treatment of PNE is largely by families using simple behavioral measures, punitive measures and traditional medications. Although simple behavioral measures are effective for mild to moderate PNE,

they are only successful if the family has strong motivation to carry out the treatment options and are professionally educated about the appropriate application of the method. Nevertheless, any successful treatment approach for children with PNE must be completely void of punitive measures as this would negate any effort at remission. In addition, traditional medications have not been proven to be efficacious and safe, so, it should be avoided. To prevent these wrong practices and increase awareness about PNE public enlightenment campaigns using the mass media which have been successfully tried in Chinese population, 32 are needed in our environment to educate families about appropriate treatment options for nocturnal enuresis and when to seek medical help.

REFERENCES

1. von Gontard A. Enuresis. In: Rey JM editors. International Association for Child and Adolescent Psychiatry and Allied Professions e-Textboot of Child and Adolescent Mental Health. Geneva: 2012.pp.1-34.
2. Etuk IS, Ikpeme O, Essiet GA. Nocturnal Enuresis and its Treatment Among Primary School Children in Calabar Nigeria. *Nigerian Journal of Paediatrics 2011*;38:78-81.
3. Osungbade KO, Oshiname FO. Prevalence and perception of nocturnal enuresis in children of a rural community in southwestern Nigeria. *Tropical Doctor* 2003;33:234-6.
4. Mbibu NH, Ameh EA, Shehu AU, Wammanda RD. The prevalence of enuresis among primary school children in Nigeria. *Nigerian Journal of Surgical Research 2005*; 7:187-190.
5. Chinawa JM, Obu HA, Manyike PC, Odetunde OI. Nocturnal Enuresis among School-age Children in South-eastern Nigeria: A Concealed Social Malaise. *International Journal of Tropical Disease and Health 2014*;4:683-95.
6. Iduoriyekemwen NJ, Ibadin MO, Abiodun PO. Survey of childhood enuresis in the Ehor community, the Edo State, Nigeria. *Saudi Journal of Kidney Disease & Transplantation 2006*;17:177-182.
7. Paul NI, Alikor EA, Anochie IC. Prevalence of enuresis among primary school children in Port Harcourt. *Nigerian Journal of Paediatrics 2012*;39:18-21.
8. Senbanjo IO, Oshikoya KA, Njokanma OF. Micturitional dryness and attitude of parents towards enuresis in children attending outpatient unit of a tertiary hospital in Abeokuta, *Southwest Nigeria. African Health Science 2011*;11:244 – 51.
9. Nwokocha ARC, Onukwuli VO, Ujunwa AF, Okafor HU, Onyemelukwe NF. Prevalence of enuresis among secondary school adolescents in Enugu, *Nigeria. Journal of Dental and Medical Sciences 2014*;13:41 – 4.
10. Anyanwu OU, Ibekwe RC, Orji ML. Nocturnal enuresis among Nigerian children and its association with sleep, behaviour and school performance. *Indian Paediatrics 2015*;52:587 – 89.
11. Adekanmbi AF, Ogunlesi TA, Fetuga MB, Oluwole FA, Alabi AD, Kehinde OA. Prevalence and risk factors for enuresis in children. *Nigeria Hospital Practice* 2011;7:
12. Ramakrishnan K. Evaluation and Treatment of Enuresis . Am Fam Physician. 2008 Aug 15;78(4):489-496. URL: http://www.aafp.org/afp/2008/0815/p489.html.
13. Fritz G, Rockney R, Bernet W, Arnold V, Beitchman J et al. Practice parameter for the assessment and treatment of children and adolescents with enuresis. *Journal of American Academy of Child and Adolescent Psychiatry 2004*;43:1540–50.
14. Joinson C, Heron J, Emond A, Butler R. Psychological Problems in Children with Bedwetting and Combined (day and night) Wetting: A UK Population -Based Study.

Journal of Pediatrics and Psychology 2007; 32:605-16.

15. Nwaneri DU, Iduoriyekemwen NJ. Socio-Demographic Characteristics and Predictors of Childhood Primary Nocturnal Enuresis in Benin City, Nigeria. *British Journal of Medicine & Medical Research 2016*;13:1-9.

16. Wright A. Evidence-based assessment and management of childhood enuresis. *Paediatrics and Child Health. 2008*;18:561-567.

17. Olusanya O, Okpere E, Ezimokhai M. The importance of social class in voluntary fertility control in a developing country. *West African Journal of Medicine 1985*;4: 205 – 12.

18. Bourquia A, Chihabeddine K. Enuresis: Epidemiological Study in Moroccan Children. *Saudi Journal of Kidney Disease & Transplantation 2002*;13:151-54.

19. Ozden C, Ozdal O, Altinova S, Oguzulgen I, Urgancioglu G, Memis A. Prevalence and Associated Factors of Enuresis in Turkish Children. *International Brazilian Journal of Urology 2007*;33:216-22.

20. Shelov SP, Grundy J, Weiss JC, Mclntire MS, Olness K, Staub HP et al. Enuresis: A Contrast of Attitudes of Parents and Physicians Ambulatory Pediatric Association Collaborative Research Workshop. *Pediatrics 1981*;67:707-10.

21. Miskulin M, Miskulin I, Mujkic A, Dumic A, Puntaric D, Buljan V et al. Enuresis in school children in eastern Croatia. *Turkish Journal of Pediatrics 2010*;52:393-99.

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

23. Lee SD, Sohn DW, Lee JZ, Park NC, Chung MK. An epidemiological study of enuresis in Korean children. *British Journal of Urology 2000*;85:869-73.

24. Wong SN, Ng CFN. Primary Nocturnal Enuresis: Patient Attitudes and Parental Perceptions. *Hong Kong Journal of Paediatrics 2004*;9:54-8.

25. Tippawan H, Nichara R, Umaporn U, Tasnawat S, Nittaya K. Epidemiology of enuresis among school-age children in Thailand. *Journal of Developmental and Behavioural Pediatrics 2005;*26:356-60.

26. Glazener CMA, Evans JMC. Simple behavioural and physical interventions for nocturnal enuresis in children (Review). Cochrane Database Syst Rev 2004; 2: CD003637.

27. Hazza I, Tarawneh H. Primary Nocturnal Enuresis among School Children in Jordan. *Saudi Journal of Kidney Disease & Transplantation 2002*;13:478-80.

28. Helmer R. Chinese Research on the treatment of Pediatric Enuresis In: Treating Pediatric Bed-wetting with Acupuncture and Chinese Medicine. 1st edition. Denver. Blue Poppy press; 2006. pp. 51- 184.

29. Lottmann HB. Treatment of nocturnal enuresis in France. *Presse Medicale 2000*;20:987-90.

30. Carman KB, Ceran O, Kaya C, Nuhoglu C Karaman MI. Nocturnal enuresis in Turkey: prevalence and accompanying factors in different socioeconomic environments. *International Journal of Urology2008*;80:362-66.

31. Ozkan KU, Garipardic M, Toktamis A, Karabiber H, Sahinkanat T. Enuresis prevalence and accompanying factors in schoolchildren|: a questionnaire study from southeast Anatolia. *International Journal of Urology 2004*;73:149-55.

32. Yeung CK, Sreedhar B, SIhoe JY, Sit FK, Lau J. Differences in characteristics of nocturnal enuresis between children and adolescents: a critical appraisal from a large epidemiological study. *British Journal of Urology 2006*;97:1069-73