Prevalence and predictors of childhood enuresis in southwest Nigeria: Findings from a cross-sectional population study

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Summary

Introduction
Childhood enuresis is common, but the prevalence and factors associated with childhood enuresis in Africa have been poorly described. Furthermore, most studies from the continent have not provided data distinguishing monosymptomatic from non-monosymptomatic enuresis. This distinction is important as it guides enuresis therapy.

Objectives
The primary objective of this study was to determine the prevalence of enuresis in children aged 5–17 years in a community in Nigeria. The secondary objectives were to determine the relative proportions of monosymptomatic and non-monosymptomatic enuresis and identify independent sociodemographic and clinical predictors of enuresis.

Study design
Parents or guardians in the community were interviewed using a pretested questionnaire. Standardized definitions were used, as recommended by the International Children's Continence Society.

Results
A total of 928 children were included in the study. The prevalence of enuresis or daytime incontinence and enuresis was 28.3% (enuresis 24.4%, and daytime incontinence and enuresis 4%); it decreased with age. Primary and monosymptomatic enuresis were the most common types of enuresis. In multiple logistic regressions, children aged 5–9 years were 10.41 (5.14–21.05) times more likely to have enuresis or daytime incontinence and enuresis compared with those aged 14–17 years. Other predictors of enuresis or daytime incontinence and enuresis were: male gender (OR 1.56 (1.13–2.14)); constipation (OR 2.56 (1.33–4.93)); and a sibling (OR 2.20 (1.58–3.06)) or parent (OR 3.14 (2.13–4.63)) with enuresis. Enuresis or daytime incontinence and enuresis was 1.92 (1.06–3.48) times more likely in fourth-born, or higher, children compared with first-born children. Only parents of nine (3.4%) children with enuresis had consulted a medical doctor about it.

Discussion
The high prevalence of childhood enuresis in the present study was consistent with most studies from developing countries and contrasted sharply with the lower rates reported among children in developed countries. Common reasons for this disparity were the influence of socioeconomic status on enuresis rates and the low utilization of effective enuresis therapies in developing countries. Consistent with published literature, monosymptomatic enuresis was the commonest form of enuresis in the present study. Furthermore, younger age, male gender and a family history of enuresis were strongly associated with enuresis. A major limitation of the study was the lack of use of a voiding diary.

Conclusion
Childhood enuresis was common in the community but parents rarely sought medical attention. Predictors of enuresis were younger age, male gender, constipation, higher birth order, and a family history of enuresis.

Introduction

Enuresis is common in childhood. In most series involving school-aged children, 16—26% of children have enuresis, which is the most common type of urinary incontinence [1,2]. While distinction between primary and secondary enuresis is made in most published studies, information as to whether enuresis is monosymptomatic or non-monosymptomatic is frequently lacking [3,4]. For instance, two recent studies from children in Africa did not differentiate these forms [2,5]. Making this distinction is important because in addition to enuresis, therapy of non-monosymptomatic enuresis should address lower urinary tract symptoms [6].

Frequently reported risk factors associated with enuresis include: male gender, younger age, belonging to a family with lower socioeconomic status, and a family history of enuresis [3,7]. However, the frequency of functional constipation, which is a common and treatable association of enuresis, is not determined in most studies [5,8]. The present study aimed to determine the prevalence of enuresis and its various forms among children aged 5—17 years in a community, and to explore the factors associated with it. In addition, it aimed to identify common strategies or treatment modalities employed by parents in the treatment of childhood enuresis.

Materials and methods

Study area and data collection

Over a 6-day period in November 2014, a pre-tested questionnaire was administered to parents of children in a peri-urban, largely residential community bordering a public tertiary hospital, in Mushin Local Government Area of Lagos State, Nigeria. The community was chosen because of its proximity to the tertiary hospital (which obviated distance as a reason for not seeking medical assistance for urinary incontinence). Members of the community are relatively poor, mostly petty traders and semi-skilled workers, and predominantly from the Yoruba ethnic group.

A sample size of 950 children was calculated based on the following assumptions: an enuresis prevalence of 28%, a 95% confidence level, a precision of 0.03, and a 10% non-completion rate of the study questionnaire. Five trained field interviewers with post-secondary education and fluency in the local language, and one of the investigators (CIE) visited houses on each street in the community. A parent was eligible to be interviewed if he/she lived in the community, had a child in the age range of 5—17 years, was available at the time of visit by the study team and provided informed consent. If a parent had more than one child in the age bracket of 5—17 years, a separate questionnaire was completed for each child. A member of the Community Development Association was in attendance each day to help explain the purpose of the study to members of the community.

The study questionnaire was developed by reviewing the relevant literature on the subject of childhood enuresis. It was pretested on a group of 50 parents attending a paediatric outpatient clinic of the neighboring public tertiary hospital. It featured sections on: demographics of the child and family; presence and pattern of urinary incontinence, including presence of other lower urinary tract symptoms such as day-time wetting, urgency, straining to pass urine, use of holding maneuvers; stool frequency, nature of stool and if passage of stool was painful; and interventions employed by parents of children with enuresis. Most of the questions in the questionnaire had multiple options to choose from. The level of parental concern about enuresis in their children was measured using a scale of 1—10, where 1 meant 'not concerned' and 10 meant 'greatly concerned'.

Before commencement of the study the field interviewers underwent 1-day of training. All of them had participated in community-based health research in the past. The training focused on the study aims, how to obtain informed consent, and the meaning of each question item and its corresponding options.

Definition of terms

Enuresis, daytime urinary incontinence, primary and secondary enuresis were defined according to the recommendations of the International Children's Continence Society (ICCS) [9]. The presence of lower urinary track symptoms, such as holding maneuvers or urgency, was taken as monosymptomatic enuresis. Constipation was defined according to the Rome III criteria, except that the duration of bowel symptoms was not required [10]. Socioeconomic status (SES) of the family was classified using the method described by Olusanya et al. [11], which utilizes the educational level of the mother and occupation of the father.

Statistical analysis

Analysis was performed using Microsoft Excel Software 2013 (Microsoft Office 2013, USA) and IBM SPSS Statistics 21.0 (IBM Corporation 2012, USA). Continuous data were summarized as mean (standard deviation) or as median (minimum—maximum), as appropriate. In bivariate analysis, children with enuresis or enuresis and daytime urinary incontinence were compared with children without it. Chi-squared test and Student's t-test, as appropriate, were used to identify independent factors associated with the presence of enuresis or enuresis and daytime urinary incontinence. A multiple logistic regression analysis incorporating simultaneous factors known to be associated with enuresis was performed. In all analyses, P-value <0.05 was considered as statistically significant.

Results

Characteristics of children studied

Seventy parents refused to participate in the study. It is unknown how this group of parents and their children compared to the group that participated in the study. Parents of 950 children participated in the study, of which the questionnaires of 22 children were discarded for incomplete information.