



Epidemiology and Social Impact of Enuresia in the Democratic Republic of Congo

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Abstract

Introduction: Enuresia remains unknown in the Democratic Republic of Congo. The objective was to assess the epidemiology and social impact of bedwetting in order to promote the overall management of enuretic children in Mbuji-Mayi.

Methods: The study was descriptive across November 20 to December 20, 2020, including 272 family leaders of enuretic children.

Results: Female sex was predominant (87.87%); the average age were 36.82 ± 8.94 years; 79.41% were biological mothers and housewives (52.21%); 61.03% of fathers had the level of secondary and primary education for mothers (70.22%). The history of enuresis in both mother and father was (44.85% versus 18.75%). The case of bedwetting was 2 infants per household (34.56%). The blue hole affected both sexes in a positive way (50.77% versus 49.23%) and the 5-8 age group was affected (58%, 43%); 75% of the kids used to pee in bed every night. The enuretic child's managers did not consult a Doctor for bedwetting; The reason for the lack of consultation was that it would pass alone (62.87%). As for the impact, 43.38% of the respondents complained of the annoying smell. The origin of bedwetting was ignored by 39.34% of respondents, while 35.66% attributed a natural origin.

Conclusion: Bedwetting is a common disorder in households, with a significant social impact. Raising awareness among enuretic children about the need to consult a doctor for care would be an asset in mitigating the consequences of this disorder.

Keywords: Epidemiology; Social Impact; Enurésia

Introduction

Enuresis, according to the International Children's Continence Society (ICCS) and the French Association of Urology, is defined as a urine emission whose initiation is involuntary and unconscious,

most often during sleep in a child at least 5 years of age [1-3]. Enuresis is a multi-factor disorder (genetic determinism and entanglement of several pathophysiological mechanisms), is one of the major problems frequently encountered in childhood [3-5]. Its pre-

valence is difficult to estimate [6]. According to some authors, this disorder affects 15 - 20% of 5-year-olds, 8% of 7-year-olds, 5% of 7-year-olds and 10-year-olds and 3% of those aged 12 to 15 [7].

In another large French prevalence survey, a frequency of 11.2% was found in children aged 5 to 7 years, a frequency of 9.2% in those aged 5 to 10 years and a frequency of 5.8% in those aged 6 to 10 years with a clear predominance masculin (sex-ratio - 3/1) [8]. In the Democratic Republic of Congo(DRC),the frequency of bedwetting is poorly understood, due in part to the scarcity of studies on the subject. Bedwetting is usually a common phenomenon, which tends to heal spontaneously with a resolution rate of 15% per year. However, in 3% of cases, it can persist after the age of 20 [9], even becoming, in some cases, severe with age [10]. It is responsible for psychological and social consequences for the child, resulting in a sense of guilt, shame and isolation [11]. The feeling of isolation can also be familial with a parental intolerance or siblings [11-13]. According to one study, bedwetting is the third most stressful for children after parental divorce and parent a disputes [14].

When health care workers are made aware of the social and psychological disruptions resulting from bedwetting, they may increasingly pay particular attention to this disorder, particularly with regard to its management. Hence this study, which aims to be a pioneering work in our environment otherwise characterized by a scarcity of studies on this subject. She asks her self to answer the question: what is the epidemiological profile of bedwetting and its social impact in Mbujimayi?

Objective of the Study

The overall objective of this study is to determine epidemiology and social impact in order to promote the overall management of enuretic children in Mbujimayi.

Materials and Methods

Study framework

Data from this study were collected in two municipalities in the city of Mbujimayi, kasai-Oriental province, in the Republic of Congo. These are the kanshi and Bipemba communities. This was a descriptive cross-sectional study that took place over a one-month period, from November 20 to December 20, 2020.

Target population

The population of this study was households with children between the ages of 5 and 15.

Sample

The theoretical minimum size of our sample was obtained using the formula below, using the prevalence of bedwetting of 20% reported by some studies [7].

$$No, no \frac{Z^2 \cdot p \cdot q}{d^2}$$

Sample size;

Prevalence;

q-1-p: complementary to prevalence;

Degrees of precision required;

Reduced deviation;

There is a risk of uncertainty.

With an uncertainty level of 5%, an accuracy of 5% and a p value of 20%, we get 245.9, or 246. By adding the 10% of non-respondents, or, by about 25, this formula allowed to estimate at least 271 the minimum sample size.

The data were collected in two com munes, due to 136 households per commune. The sample was thus con skilled by three-degree random survey. The 1st degree consisted of randomly selecting the two municipalities from the 5 in the city of Mbujimayi. The second degree was to randomly select a neighbourhood from all the neighborhoods in each of the two municipalities. The 3rddegree consisted of randomly selecting the avenues in the neighborhood. In the avenues, households were selected arbitrarily, respecting a sondage step of which was equal to 10. Within the household, a parent or manager was selected who met our selection criteria for the administration of the questionnaire. Pour collecting data nous used a semi-open survey questionnaire.

Selection criteria

To be included in this study, households had to meet the following criteria: having at least one enuretic child between the ages of 5 and 15 and deliberately agreeing to participate in the survey by answering the entire questionnaire.

Study settings

This study relied on the following parameters: General parameters: age, sex, common residence, level of study of the father (guardian), level of study of the mother (interlocutor), occupation of the respondent, number of children from 5 to 15 years. Enuresis-

related settings: Age and sex of enuretics, shadows of urination by period, familial antecedents of bedwetting, consultation with health care staff, motivations of consultation with health care staff, reasons for non-consultation of health care staff, social or relational difficulties of enuresis, presumed origin of enuresis according to the respondent.

Statistical analysis

The data was encoded on an Excel basis (Microsoft corporation, USA, 2007) to be analyzed using Epi Info software (version 3.5.1, CDC, USA, 2008).

The results obtained will be expressed in the form of staff (n), proportions (%) and averages with standard deviation and presented using tables and figures.

Ethical considerations

Anonymity and confidentiality of the data were ensured. Informed consent of the data was obtained orally after informing them of the objectives of the investigation.

Results

General characteristics of interviewees

Most of the respondents were aged 30 to 39, 57 cases, or 41.91% for the commune of Bipemba and 65 cases, or 47.79% for the municipality of Kanshi; the average age was 36.82 ± 8.94 years for the two communes. The majority of respondents were female, in 239 cases overall, 87.87%. In 216 cases, or 79.41%, these individuals were biological mothers of the enuretic child. More than half of the people interviewed were housewives. High school education was predominant at 166 cases (61.03%) for fathers while primary school was for mothers of enuretic children: 191 cases (70.22%) (Table 1).

Family history of bedwetting

The history of bedwetting was reported in the mother in 122 cases, or 44.85% and in the father in only 51 cases, or 18.75% (Table 2).

Characteristics	Commune				Total	
	Bipemba		Kanshi		Total	
	Actual No.136	%	Actual No.136	%	Actual No.272	%
Age (in years)						
<20	1	0,74	0	0,0	1	0,37
20 - 29	43	31,62	28	20,59	71	26,10
30 - 39	57	41,91	65	47,79	122	44,85
40 - 49	24	17,65	31	22,79	55	20,22
50 - 59	7	5,15	6	4,41	13	4,78
≥60	4	2,94	6	4,41	10	3,68
Average ± ET	34,63 ± 9,24		36,82 ± 8,94		35,72 ± 9,14	
Med (Min - Max)	32,00 (18,00 - 65,00)		35,00 (22,00 - 65,00)		35,00 (18,00 - 65,00)	
sex						
feminine	128	94,12	111	81,62	239	87,87
Masculin	8	5,88	25	18,38	33	12,13
Relationship with the child						
Brother	0	0,00	1	0,74	1	0,37
Grandmother	6	4,41	2	1,47	8	2,94
Mother	107	78,68	109	80,15	216	79,41
Father	7	5,15	24	17,65	31	11,40

sister	10	7,35	0	0,00	10	3,68
Many	6	4,41	0	0,00	6	2,21
Profession						
merchant	59	43,38	30	22,6	89	32,74
Diamond	2	1,47	4	2,96	6	2,21
student	0	0,00	3	2,21	3	1,10
State official	5	3,69	10	7,36	13	5,52
housewife	64	47,06	78	57,35	142	52,21
motorcyclist	2	1,48	4	2,95	6	2,21
dressmaker	3	2,21	3	2,21	6	2,21
All work	1	0,74	4	2,95	5	1,84
Father's level of education						
unknown	4	2,94	2	1,47	6	2,21
No answer	5	3,68	0	0,00	5	1,84
primary	36	26,47	41	30,15	77	28,31
secondary	91	66,91	75	55,15	166	61,03
academic	0	0,00	18	13,24	18	6,62
Mother's level of education						
unknown	2	1,47	0	0,00	2	0,74
No answer	5	3,68	0	0,00	5	1,84
primary	97	71,32	94	69,12	191	70,22
secondary	32	23,53	40	29,41	72	26,47
academic	0	0,00	2	1,47	2	0,74

Table 1: Breakdown of respondents by socio-demographic characteristics.

	Enurésia n (%)			
	Total			
Parents	Yes(%)	Not(%)	Don't know(%)	n (%)
Mother Bipemba	44(32,3)	36(26,47)	56(41,18)	136(100)
Kanshi	78(57,35)	19(13,97)	39(28,68)	
Subtotal	122(44,85)	55(20,22)	95(34,93)	272(100)
Father Bipemba	7(5,15)	5(3,68)	124(91,18)	136(100)
Kanshi	44(32,35)	13(9,56)	79(58,09)	
Subtotal	51(18,75)	18(6,62)	203(74,63)	272(100)
Total	173(31,80)	73(13,42)	298(54,77)	544(100)

Table 2: Breakdown of cases by history of bedwetting.

Enuretic children's characteristics

Frequency of enuresis children per household

We note from this figure that the largest number of households reported 2 cases of enuretic children, 94 households (34.56%), while the case of 5 enuretic children per household represented only 2.94% (Figure 1). The frequency of bedwetting was almost equal in both sexes, with a slight feminian prevalence (50.77% vs. 49.23%).

In the commune of Bipemba, most households reported a case of enuretic child, with a slight predominance of the female sex (42.65% male (41.18%) (Figure 2).

In Kanshi commune, most households also reported a case of enuretic child, but with a slight male predominance (42.65% female (41.91%) (Figure 3).

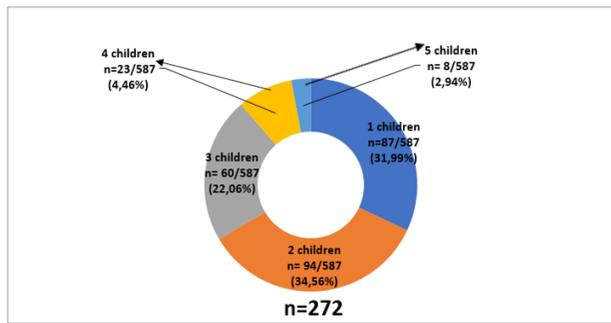


Figure 1: Number of enuretic children per household.

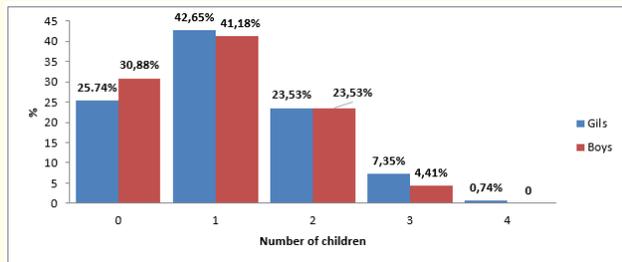


Figure 2: Frequency of bedwetting by sex in Bipemba commune.

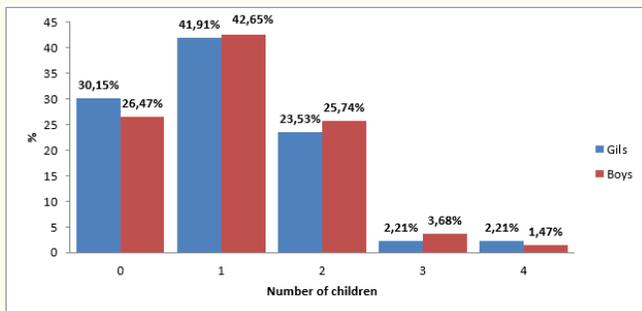


Figure 3: Frequency of bedwetting by sex in Kanshi commune.

Age and sex of enuretic children

Most enuretic children, regardless of the commune, were between 5 and 8 years old or 343 cases (58.43%). Although, overall

the female sex was slightly predominant, in relation to the communes, we noted a predominance of the female sex in Bipemba (53.06%) kanshi (51.54%) (Table 3).

Age (in year)	Commune					
	Bipemba		Kanshi		Total	
	Actual No.294	%	Actual No.293	%	Actual No. 587	%
5 - 8	178	60,54	165	56,31	343	58,43
9 - 12	90	30,61	97	33,11	187	31,86
13 - 15	26	8,84	31	10,58	57	9,71
Average ± ET	8,18 ± 2,67		8,48 ± 2,73		8,33 ± 2,70	
Med (Min - Max)	8,00 (5,00 - 15,00)		8,00 (5,00 - 15,00)		8,00 (5,00 - 15,00)	

Table 3: Breakdown of enuretic children by age.

Numbers of urination per period

As for the frequency of bedwetting, we note that, regardless of the commune, the most enuretic children, 439 cases or 74.79%, peed in bed every night (Table 4).

Frequency	Commune					
	Bipemba		Kanshi		Total	
	Actual No.294	%	Actual No.293	%	Actual No. 587	%
1 - 2 times a month	0	0,00	1	0,34	1	0,17
1 - 2 times a week	19	6,46	34	11,60	53	9,03
≥3 times a week	45	15,31	49	16,72	94	16,01
Every night	230	78,23	209	71,33	439	74,79

Table 4: Breakdown of enuretic children by frequency of urination by time.

Reasons for non-consultation

None of the respondents had yet consulted health care workers for the child's bedwetting problem. Among the reasons given for this lack of consultation, 175 or 64.35 percent of participants said

that this problem will pass on their own, while 79 or 29.04% said it was not a medical problem (Table 5).

	Commune					
	Bipemba		Kanshi		Total	
	Actual No.136	%	Actual No.136	%	Actual No. 272	%
Medical consultation						
Yes	0	0,00	0	0,00	0	0,00
Not	136	100,00	136	100,00	272	100,00
Reasonfor lack of consultation						
It'll pass by itself.	87	63,97	88	64,71	175	64,35
This is not a medical problem	47	34,56	32	23,53	79	29,04
The child doesn't want me to talk about it	1	0,74	1	0,74	2	0,74
Lack of means	1	0,74	1	0,74	2	0,74
There is no effective treatment	0	0,00	14	10,3	14	5,14

Table 5: Case Breakdown by Medical Consultation.

Bedwetting

As for the impact, overall 118 or 43.38% of respondents had complained about the annoying smell of children's bedrooms peeing in bed at night, while 39 or 14.34% had complained, in addition to the annoying smell, also of the shame faced by children who are covered by enuretic children (Table 6).

Origin of bedwetting

In relation to the origin of bedwetting, most participants, 107 or 39.34% said they did not know its origin; 92 or 36.4% thought it has a natural origin because it is a normal situation (Table 7).

Discussion

Enuresis is an involuntary and unconscious release of urine, most often during sleep in a child at least 5 years of age [1]. This disorder may persist after the age of 20 [9], even becoming, in some

Impact	Commune					
	Bipemba		Kanshi			
	Actual No.136	%	Actual No.136	%	Actual	%
No impact, because it's a normal situation	17	12,50	32	23,53	0	0,00
High financial cost for hygiene	9	6,62	11	8,09	20	7,35
Shame on the child	8	5,88	31	22,79	39	14,34
Humidity	3	2,21	10	7,35	5	1,84
Negative impact on family relationships	7	5,15	2	1,47	9	6,62
Child's discomfort	7	5,15	2	1,48	9	3,31
Worrying given the age	4	2,94	1	0,74	5	1,84
Inconvenient smell	72	52,94	46	33,82	118	43,38
Refusal to spend night outside his home	9	6,62	1	0,74	10	3,67

Table 6: Breakdown of cases by impact.

cases, severe with age [10]. It is responsible for the psychological and social consequences for the child, resulting in a sense of guilt, shame and isolation [11]. The aim of this study was to promote the overall management of enuretic children through knowledge of the epidemiological profile and social impact of this disorder. To do this, it included a random sample of 272 cases of family leaders of enuretic children distributed in the municipalities of Kanshi and Bipemba, due to 136 per commune.

Regarding the general characteristics of the respondents, women were the majority among the participants in this study (87.87%). These results bear similarities to those of a previous study conducted by Swiatek N., *et al.* on bedwetting in Toulouse in relation to gender [4], which reported that mothers had participated mainly in the survey (88.6%). These results are also similar to those of other authors in the world [16-18]. This female predo-

Origin	Commune					
	Bipemba		Kanshi		Total	
	Actual No.294	%	Actual No.293	%	Actual No.587	%
Climate	0	0,00	1	0,74	1	0,37
Plenty of drink	10	7,35	23	20,59	38	13,97
Nightmare	2	1,47	7	5,15	9	3,31
Fatigue	0	0,00	5	3,68	5	1,84
Promotes growth	2	1,47	0	0,00	2	0,74
Infection	0	0,00	2	1,48	2	0,74
Unknown disease	1	0,74	0	0,00	1	0,37
Fertility	2	1,47	3	2,21	5	1,84
Natural origin because it's a normal situation	45	33,09	54	39,71	92	36,4
Unanswered question	2	1,47	1	0,74	3	1,10
Origin ignored	72	52,94	35	25,74	107	39,34

Table 7: Breakdown of cases by the supposed origin of the origin of bedwetting.

minance among respondents could be explained, on the one hand, by the fact that enuresis is in the maternal domain: in fact, it is the mothers who generally take care of material management (laundry, cleaning), emotional relationship with the child, his health so that some authors, including Tricaud, consider enuresis as a problem of the child with his mother, the fathers being mostly less invested, rather severed and less tolerant [19]. On the other hand, it could be explained by the fact that in our circles, and particularly in this study, women are ordinary unemployed housewives (52%) and therefore, it is more likely to meet them at home during a visit to the household.

In this study, the average age of respondents was 35.72 ± 9.14 years and was close to that reported in a French study (39.2 ± 7.4 years) [4]. As for the family history of bedwetting, this study showed that it was reported in the mother in 44.85% and in the father in only 18.75%. These results are different from those reported by Swiatek N, where the maternal history of bedwetting was present in 20.6% and the paternal history present at 24.2% [4]. Regardless of gender, bedwetting in parents was present in 23.4% in

the Kaoutar L study [20]. The role of heredity in the occurrence of bedwetting in children is not elucidated. But genetic factors would be recognized as determining factors in its occurrence. It is even noticed lines of male humans who are indeed affected by this disorder. When parents have been enurest, 77% of their children are also affected by this disorder, compared to only 44% when only one parent has been affected. This probability would increase even in homozygotic twins [3,15,21].

Our study reported a prevalence of 2 cases of bedwetting per household in most cases (34.56%). This disorder affected both sexes almost equally (50.77% versus 49.23%). More than half of the enuretic children were between the ages of 5 and 8 (58.43%). Some studies have found a high prevalence of enuresis in the male sex [22-24] while some other reports have a high prevalence in female sex [25,26]. However, this prevalence tended to decline with age, as did the results reported in other series. As for the frequency of bedwetting, most enuretic children, 74.79%, peed in bed every night. This proportion is very high, compared to that reported by other studies conducted in other parts of the world; d ns the series of Katayoun B., *et al.* 19.2% (1 to 3 times) per week and 49.1% u times or less per week [22], and in the series of Gunes., *et al.* [27-29], the frequency of bed peeing each night was 31%, 33%, and 24.6% respectively. This finding could be explained by the fact that most of the children surveyed had severe bedwetting.

This study shows that no person who had interviewed the respondents had contacted a doctor for the problem of child bedwetting; 64.35% of respondents had mentioned as a reason for the non-consultation the fact that this problem will pass alone while 29.04% claimed that it is not a medical problem. These results differ from those of Swiatek N (36.2%) regarding the consultation frequency. For the parents' website(62.2%), the Swiatek N series revealed, the expectation of spontaneous resolution was sufficient, while 43.2% of them did not identify bedwetting as an organic problem (medical problem). This finding could be explained by the fact that the parents of the enuretic children did not have information regarding the management of bedwetting.

Most respondents (39.34%) did not know the origin of bedwetting, 36.4% thought it has a natural origin because it is a normal situation. As for the impact, 43.38 percent of respondents complained about the annoying smell of children's bedrooms peeing in bed at night, while 14.34 percent complained of the shame of

the enuretic children. The effects of bedwetting are various: Disruptions in social life, psychological consequences, parental anxiety, fatigue and frustration are frequently mentioned and many studies suggest that most respondents admit the natural origin of the enuretic child, the majority of enuretic children have never slept anywhere but at home. Parents are aware of the limitation of their children's social activities. Swiatek N describes bedwetting as a "social handicap." This can be explained by the shame and fear of the child, who hides his affection from his comrades. Bedwetting affects a child's self-esteem and causes emotional disturbances.

Conclusion

At the end of this study, bedwetting is a common disorder in households, most enuretic children are female with significant social impact and none of them have ever seen a doctor. Raising awareness among enuretic children about the need for a doctor's consultation for care would be a major asset in mitigating the consequences of this disorder. However, further studies may confirm or disprove the situation of bedwetting in Mbuji-Mayi.

Ethical Approbation and Participation Consent

This study has been approved and authorization has been obtained from the Dean of the Faculty of Public Health at Official University of Mbuji-Mayi, to whom we wrote to ask for permission by explaining the objectives and methods of the study. The parents were ensured that their participation to the study was optional and anonymous. They were equally assured of confidentiality of the provided information and that all data should be analyzed anonymously. A written consent form has been filled out before the participation to the interview.

Contribution of Authors

MPULUMBA and MATUNGULU are responsible of conception of the study, undertook the interview, collected data, analysed and interpreted the data and wrote the draft. MUSASA, MUKENDI, MBUYI, BAMBI and MANONGO participated in the conception of the study, supervised data collection and data analysis. NGANDU is the scientific manager of the study, data analysis and interpretation, and the preparation of the final draft.

Conflicts of Interest

The authors do not claim any interest conflict.

Study Limitation

This study did not address the causes, treatment and classification of plants.

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