CHAPTER 5

Children Who Wet the Bed

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Children who wet the bed at ages after their parents think that they should be dry are seen by a variety of doctors, of different disciplines and outlook, who tend to approach the treatment of the complaint with a wide range of techniques. However, whatever they think of the origin of the symptom, all doctors will have difficulty in evaluating results of the treatment they have prescribed, because so little is known of the natural history of the untreated condition or its frequency in the general population. Ideally, to know this one would have to observe a population of enuretic children, none of whom were receiving treatment, over a number of years, but in our society this is virtually impossible to arrange. However, as part of the 1000 family survey, a group of us working in Newcastle between 1947 and 1962 were able to record data on the incidence and natural history of enuresis in an unselected series of patients without any responsibility for treatment.

Briefly, the situation was as follows. In 1947, primarily to study acute infections in infancy and early childhood, a study group comprising all the infants born in the City of Newcastle over a period of two months (May and June) was enrolled. By regular visiting and the collection of data from many sources, a prospective history of each child and his family was compiled, and it was possible to study events in their social settings. Since the study was observational and we had no responsibility for treatment, we were able to gather data without affecting the outcome, and to watch changes over time. Two reports have been published, and a third is with the publishers (Spence *et al.* 1954; Miller *et al.* 1960, 1973).

This short paper concentrates upon the frequency of bedwetting at ages up to sixteen years, and makes brief mention of certain associations. Aetiology is not discussed. Certain of the data have been published (Miller *et al.* 1960), but most are still in the press.

Collection of Data

The presence of bed-wetting was noted regularly during family visits. At any age, we accepted as enuretic a child who wetted the bed either habitually, or frequently enough for the parents to take precautions or complain to a doctor or health visitor. Degrees of frequency noted ranged from once a month, which was considered 'rare', to every night.

Prevalence of Enuresis

Most children become dry during their third year, and 653 of 847 (77 per cent) were dry on their third birthdays and still dry at five years. At the fifth year analysis only 75 (9 per cent) were recorded as being wet at night, and 30 of these were dry before

they were nine. In the next analysis, however, it was realised that the figure of 75 enuretics at the age of five years had been too low, and that a more accurate estimate was nearly twice this number, 133 of 750 children.

Pattern of Enuresis

Seventy-nine of the 133 children considered to have been enuretic at five years had achieved control by the time they were eleven. On the other hand, 37 others, dry at five, reverted to being wet for periods of varying length. Twenty-nine of these were still wet on their eleventh birthdays, and two were still wet at sixteen when observation ceased. Relapses almost ceased after the tenth year, and none occurred in children over eleven. Thus, in all, 83 children (11 per cent) were considered enuretic on their eleventh birthdays (Table 1). This figure, which may be taken as a reasonably accurate estimate, was composed of 54 children who had been wet at five years and 29 who had relapsed after that age.

After the age of eleven years, when relapses ceased, children of both groups (*i.e.* those who had always been enuretic and those who had become enuretic after a period of being dry) gradually became dry. Only 45 (6 per cent) were still wet on their thirteenth birthdays; by the following year this figure had dropped to 26, and by the time they were sixteen years old only 16 (2 per cent) remained wet. Any attempt to show the value of a particular treatment must therefore take this natural remission into account—in four years 67 of 83 children became dry, and we do not believe that any relapses occurred.

Throughout the study, the presence of enuresis was difficult to determine. So too was the frequency, for we could not ask mothers to keep a calendar. Nevertheless, it was apparent that some children were wet almost every night for long periods, while others had periods of remission alternating with longer or shorter periods of bed-wetting. Some children were wet only at home, and dry when on holiday, with

TABLE I

Number of children with enuresis at various ages (total population = 750)

	At age 5 years	*At any time between 5th and 11th birthdays*	*At 11th birthday*	*At 13th birthday*	*At 14th birthday*	*At 15th birthday*
No. of children enuretic	133	170	83	45	26	16
Percentage of 750	17·7	22·7	11	6	3·5	2

	After 5th and before 11th birthday	*Between 11th and 13th birthdays*	*Between 13th and 14th birthdays*	*Between 14th and 15th birthdays*
No. of children becoming dry	87*	38	19	10

*Including 8 children who had been dry at five years and subsequently developed enuresis.

relatives, or in hospital. The normal pattern of regression seemed to be a gradual diminution in frequency, from 'more often than not', to 'twice a week', and then at odd intervals, especially on a cold night or if the child was unwell. On the other hand, in many children the pattern was irregular over long periods of time, without any definite phasing of cessation. Abrupt cessation of enuresis after therapy was not recorded.

Medical Care

Enuresis is a common enough cause of referral to hospital, and it was expected that most of the 83 children in whom the symptom was still present at eleven years would at some time have been taken to seek medical advice. Consequently, it was also thought that it would be possible to obtain fairly precise data concerning the proportion of these enuretics with evidence of organic disease.

The actual facts were surprising. As far as we were able to ascertain, only 28 of the 83 had ever been taken to their local doctor or the hospital; 17 of these had in fact reached the hospital for reasons other than their enuresis, but the records showed that in all of them the urine had been examined and found free from pus cells or other abnormalities; another three had received advice from the family doctor; the remaining eight had been sent to hospital because of their enuresis, three having been seen as outpatients and five having been admitted for investigation. Only one of these children had been found to have organic disease (chronic urinary infection with bilateral hydronephrosis), and in this girl the enuresis continued into her sixteenth year, long after the infection had been adequately treated. In all, there was evidence that a urinary examination had been performed in only 33 of the 83 children, so the data are too incomplete to justify any firm conclusions; however, they do seem to suggest that organic and infective disease plays only a small part in the causation of the symptom of enuresis.

Two other points may be made. Firstly, the fact that such a small proportion of the children sought or received medical advice strengthens the possibility that the changing prevalence between the beginning of the eleventh and the beginning of the fifteenth year in this survey really does represent the natural history of enuresis. Secondly, this rate of seeking advice relates to ten years ago, and the incidence of advice-seeking may have changed since then, even if the prevalence has not.

Comparison with Other Surveys

In comparison with other recent surveys (Table II), it would seem that the prevalence at every age was greater in Newcastle. Although it is possible that differences between populations do exist, we think the prevalence is often underestimated. In York, where Bransby *et al.* (1955) found a prevalence at the age of ten years very similar to that in our survey, the diminution thereafter was much swifter.

Characteristics of Children Wet at Eleven Years

Of the 83 children still enuretic on their eleventh birthdays, 32 were girls and 51 were boys; of these, 13 girls and 32 boys were still wet at thirteen, and 6 girls and 10 boys were still wet at fifteen. Thus boys predominated at all ages.

TABLE II

Comparison of prevalence of enuresis at different ages in various studies in England and Wales

Survey and Authors	*Ages and prevalence*
Thousand family survey Newcastle upon Tyne	17·7 per cent at 5 years; 11 per cent at 10 years; 2 per cent at 15 years.
Schoolchildren in Glamorgan R.D. (Jones 1961)	7·4 per cent in the 11th year.
National Survey (Blomfield and Douglas 1956)	12 per cent at 4½ years; 10 per cent at 6 years; 7·25 per cent at 7¾ years.
York (Bransby *et al.* 1955)	18 per cent at 5 years; 9 per cent at 9 years; 2·5 per cent at 11-14 years.

TABLE III

Social class of children with enuresis after the age of 11 years

(a) Occupation of father in 1947

	Social Class				*Total*
	I and II	*III*	*IV and V*	*NC*	
Observed No.	4	34	43	2	83
Expected No.	9	42	27	5	83

$\chi^2 = 14{\cdot}13$, n = 3, $p < 0{\cdot}005$

(b) Occupation of father in 1962

	Social Class				*Total*
	I and II	*III*	*IV and V*	*NC*	
Observed No.	3	44	37	—	84
Expected No.	10	44·5	29·5	—	84

$\chi^2 = 6{\cdot}8$, n = 2, $p < 0{\cdot}05$

N.C. = not classified

TABLE IV

Enuresis at age 11 years and place in family

		Place in family			*Total*
		1st	*2nd*	*3rd or more*	
All children		330	230	222	782
Children with enuresis at 11th birthday	*Observed No.*	28	39	16	83
	Expected No.	35	24·5	23·5	83

$\chi^2 = 12{\cdot}45$, n = 2, $p < 0{\cdot}001$. χ^2 value due largely to an excess of 2nd children.

As in other studies, the enuretic children were found to be significantly more likely to be classified in Social Classes IV or V (Table III), to come from large families and to be second children (Table IV), than the non-enuretics, and their families were more likely to be living in over-crowded houses.

The mothers of the children with enuresis tended to have been younger at marriage, only six of the 83 having been more than 24 years old (Tables V and VI). There was also a deficiency of mothers rated as 'good' with regard to the general care of the child and the standard of housekeeping. There was no significant difference between the mothers of enuretic children and other mothers with regard to the proportion who went out to work or were constantly present. The fathers of the enuretic children also tended to show a deficiency in family support and participation, suggesting, as with the mothers, a relatively poor level of parent-craft.

Most authors suggest that the incidence of enuresis is greater amongst the parents and families of children with enuresis than amongst those of non-enuretics, and this view is supported by our findings. Whereas in a control series of 83 children from the same survey only four cases of enuresis were found amongst close relatives, an investigation of the families of the children affected at eleven years revealed 23 close relatives who were or had been enuretic.

The mean height of the children enuretic at eleven years was less than that of the rest of the series at all ages up to fifteen years, and the chance of cessation of the symptom was related to the growth increment between nine and fifteen years (Table VII).

TABLE V

Enuresis at 11 years and age of mother at time of marriage

Age	*Non-enuretic No.*	*Enuretic No.*
less than 24 years	469	77
more than 24 years	179	6
Total	648	83

$\chi^2 = 15{\cdot}13$, $p < 0{\cdot}001$, excess of young mothers.

TABLE VI

Place in family of children with enuresis at 11 years of age, according to mother's age at marriage

Mother's age at marriage	*Place in family*			*Total*
	1st	*2nd*	*3rd or more*	
Younger than 20 years	5	11	5	21
20 to 24 years	21	25	10	56
25 years or older	2	3	1	6
Total	28	39	16	83

TABLE VII

Enuresis at 11th birthday and height (ins.)

Age (years)	*Never enuretic*		*Not enuretic at 11th birthday*		*Enuretic at 11th birthday*		*All children*	
	No.	*Mean height*	*No.*	*Mean height*	*No.*	*Mean height*	*No.*	*Mean height*
3	449	36·15	499	36·10	60	35·82	559	36·06
5	510	43·15	576	43·08	75	42·55	651	43·00
9	600	50·29	671	50·24	82	49·83	753	50·18
15	505	63·05	568	63·04	69	61·47	656	63·00

It was also noted that in all tests from age five years onwards, the children who were wet had a lower mean IQ than those who were not; the mean results of the tests performed at the ages of eleven, twelve and fourteen years suggested that the longer the symptom persisted, the lower the enuretics' test scores were likely to be in comparison with those of the non-enuretics. The poorer intellectual performance of the enuretics was also reflected in their lower educational attainment (*i.e.* the number of children in selective schools), their poorer performance with regard to family activities, such as helping in the house, and their greater tendency to behaviour disorders.

Conclusions

This study suggested that in Newcastle upon Tyne:

(1) the incidence of enuresis amongst children born in 1947 was of the order of 17 per cent at five years and 11 per cent at eleven years;
(2) after their eleventh birthdays, no children then dry relapsed, and none became enuretic for the first time;
(3) without treatment there was natural remission from 11 per cent at eleven years to 2 per cent at fifteen years; and
(4) children with enuresis tended to come from families with social handicap.

REFERENCES

Blomfield, J. M., Douglas, J. W. B. (1956) 'Bedwetting: prevalence among children aged 4-7 years.' *Lancet*, **i**, 850.

Bransby, E. R., Blomfield, J. M., Douglas, J. W. B. (1955) 'The prevalence of bedwetting.' *Medical Officer*, **94**, 5.

Jones, E. (1961) 'A survey of nocturnal enuresis.' *Medical Officer*, **106**, 114.

Miller, F. J. W., Court, S. D. M., Walton, W. S., Knox, E. G. (1960) *Growing up in Newcastle upon Tyne*. London: O.U.P.

—— —— Knox, E. G., Brandon, S. (1973) London: O.U.P. (*Not yet published.*)

Spence, J., Walton, W. S., Miller, F. J. W., Court, S. D. M. (1954) *A Thousand Families in Newcastle upon Tyne*. London: O.U.P.

CHAPTER 6

Cross-cultural Aspects of Bedwetting

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It is of particular interest to a paediatrician that anthropologists, while describing in minute detail the methods used to teach children sphincter control in various cultures, seldom go on to discuss what happens when control is not achieved at the usual age, or how many children are so afflicted.

Prevalence

In tribal societies throughout the world, it is usual for babies to be gently 'taught' by their mothers from the early months where *not* to eliminate (usually only in the bed), rather than to be shown particular places for doing so. The child usually learns the appropriate place and method later by imitation and gentle cajoling, although in some tribes harsh methods including shouting, beating, and shaming are used early. Failure to acquire anal control would appear to be very rare in tribal societies, in contrast to its prevalence in the Western world, and 'soiling' past the age of three years is seldom mentioned by anthropologists or doctors working in the field.

Bedwetting, on the other hand, is well known to occur, though its prevalence has not been studied. The author, while working for two and a half years in the 1960s among tribal people in West Africa, estimated that, in each of two villages of different tribes in Sierra Leone and in one village in Ghana, approximately ten per cent of pre-pubertal children were bedwetting. Discussions with medical assistants in villages in Uganda and with paediatricians in Thailand and Malaysia suggested a similar prevalence, which is very much the same as in the U.K. This is a rough estimate, as enuretic children are not considered a medical problem, and tribal people are often surprised and reticent when asked about it. Because of the language difficulties, it was impossible to explore the topic of enuresis in the various village communities during a visit to New Guinea last year, and Australian paediatricians and public health nurses are never consulted about it and do not know its prevalence.

Recent studies of bedwetting in various communities in Israel have shown many interesting facets. In most kibbutzim, the prevalence of bedwetting amongst children aged six to eight years is apparently very high, varying from 35 per cent to 70 per cent in different surveys. Kaffman, however, in his survey of 403 kibbutz children, found a prevalence of only 12 per cent in the seventh year of life. The reasons for these findings have not yet been established, but Bethelheim (1967) and Kaffman (1961) suggest that it is due to ambivalent attitudes in the caretakers and lack of positive training. In non-kibbutz children, the prevalence is lower, varying between 15 per cent and 18 per cent at six years of age, according to two surveys; it is higher in religious than in secular schools (19.6 per cent compared with 14.3 per cent) and in people of oriental as opposed to European origin (25 per cent as against 12 per cent).