

Indications for Research: II

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The divided opinions about the causes and treatment of nocturnal enuresis derive from the fact that much of the research done on nocturnal enuresis has been piecemeal, badly designed, or inadequately reported. The first plea must be for an improvement in the quality of future research. It is possible to mention here only a few of the more urgent research requirements.

In survey research we want more information about the natural development of continence in representative samples, collected on a prospective rather than retrospective basis. Cross-sectional surveys do not tell us how individual children become dry. Longitudinal surveys will be essential since they enable us to investigate the changing composition of the enuretic population throughout childhood, and they can also provide data on the aetiology of secondary enuresis, which it is difficult to obtain by other survey methods. However, as pointed out by de Jonge (this volume Chapter 4), there is considerable variation in the survey literature, not only as regards the definition and hence the types of cases of nocturnal enuresis under discussion, but also as regards method. It is particularly important that future surveys should be designed to provide data about the prevalence of enuresis for each age and for various degrees of frequency of wetting.

Finally, we still know very little about the extent of nocturnal enuresis amongst adults. Existing surveys are based mainly on military recruits. We need to find out about the extent of the problem in a representative sample of adult men and women.*

Where studies are based on a clinical population, then the criteria for selection of people as enuretic must be clearly stated, and authors must indicate possible sources of inherent sampling bias that may be of relevance in the evaluation of results. More attention must be given to the careful description of case material, and results should be presented with a breakdown according to some of the more important variables (*e.g.* age, sex, type and frequency of wetting).

In treatment research, the design of investigations should incorporate the collection of base-line, pre-treatment measures, across a wide spectrum of behaviour, and authors should state criteria of outcome. We need more comparative trials of different treatment methods, and it is essential that results should be analysed in such a way that it is possible to examine for each method of treatment the relationship between outcome and background factors. Some types of therapy are effective for particular types of case, although their over-all effectiveness may not be impressive. The study by Kolvin and his colleagues (this volume Chapter 26) is therefore a

*It may be useful even to know whether there is a greater tendency to wet on particular nights (Friday is pay day). It used to be accepted that women never wet after getting married; is this true today? (Eds.)

welcome addition to the treatment literature, since they have presented information about different predictors of outcome for imipramine and buzzer methods of therapy. The well-demonstrated spontaneous remission of bedwetting with age must be considered in the evaluation of all treatment methods. It would be useful to assess the importance of non-specific therapeutic variables by using factorial research designs.

Whatever the treatment tried, relapses are reported, so there is a clear research need to follow up for at least a year and also to study ways of reducing the relapse rate; a longer view of therapy implies that re-treatment should be offered as a matter of routine. We still need to know what are the social limitations of the bell-and-pad-method, and whether a combination of drug and conditioning approaches can be helpful. In fact, since children with enuresis tend to come from families with social handicap (Miller, this volume Chapter 5), it is obvious that a lot more research should be directed towards the evaluation of treatment methods when used with children from socially deprived homes.

Theory

The model provided by learning theory gives a comprehensive theoretical framework within which to investigate both the aetiology and the treatment of diurnal and nocturnal enuresis, but it has not yet been fully tested at its different points. [The study of enuresis also provides ways of testing aspects of the theory—*Eds.*] The theory predicts that the acquisition of bowel and bladder control is facilitated by the provision of optimum conditions for learning, and these need to be defined. Although research into the significance of training in the treatment of nocturnal and diurnal wetting has largely given negative results, past investigations can be criticised for having concentrated on such indices as age of training, its presence or absence (as recollected by mothers), and the duration of toilet-training. We require a more detailed examination of different training methods and their effectiveness.*

In relation to training in day-time bladder control, research on the importance of imitation learning (*i.e.* copying appropriate toilet behaviour) and the social rewards given by parents would be useful. There have been two studies which show that the development of day-time continence *can* be facilitated by rewarding children for the successful use of the toilet (Madsden 1965, Pumroy and Pumroy 1965). Research should now be directed towards a systematic analysis of the significant variables in the training process. The nappy-training device that has recently been described by van Wagenen *et al.* (1969) will no doubt be useful for future investigations in this area.

Another line of research within the general model of learning concerns the possibility of enuresis being due to poor conditionability (see Lovibond 1964). However, it must be recognised that considerable difficulties are likely to be encountered in measuring conditioning ability in young children. As regards the hypothesis that in enuretic children the emergence of dryness usual during the third

*How the mother does the training, as well as *what* she does and *when* she does it, need to be known. The nearly complete success of Brazelton's (1962) 'child-oriented' system of toilet training on a large group of children is the outstanding challenge in the field of training methods. It must be repeated (*Eds.*).

year has been impaired by (often transient) stress factors (Mac Keith 1968), the findings of Douglas (this volume Chapter 15) certainly suggest that this is true. However, as Rutter *et al.* (this volume Chapter 17) have argued, the findings can be interpreted in many ways, and it still has to be demonstrated that these stress factors modify the training practices of mothers* and the behaviour of their young children.

The effect of stress on existent behaviours has also a considerable relevance for our understanding of secondary enuresis. But, here again, we must begin by finding out how often there are identifiable 'stress' factors at the time of the re-appearance of bedwetting. We should also consider the possibility that in onset enuresis there has usually been preceding 'latent' enuresis (Yeates, this volume Chapter 18), though this would not be an easy thing to establish.

A learning component in treatment by the buzzer is suggested by the available evidence (*e.g.* Baker 1969). However, we need more research into the much wider changes that may occur when the buzzer is introduced into the home (Turner, this volume Chapter 23). It is difficult to see how the necessary information can be obtained, except by the careful observation of family interaction during therapy. One basic assumption of the learning theory position is that learning *can* occur during sleep; it remains to be demonstrated. The importance of the techniques of using the buzzer, *e.g.* of full arousal (Dische, this volume Chapter 24), also requires study.

Another area for research concerns the apparent changes in bladder capacity which occur when children are being treated by the buzzer method. Jones (1960) has suggested that during this treatment there is a progressive increase in the volume of urine tolerated by the child before reflex micturition occurs. The hypothesis could be tested indirectly by studying changes in the times when micturition occurs (as a function of duration of treatment) and by the careful recording of all occasions when the child wakes up spontaneously to urinate.**

*It is surely possible that the stresses in the third year could prevent the appearance of the desired behaviour without modifying the mother's training practices. (*Eds.*)

**The question arises here of whether buzzer treatment brings about changes in the bladder musculature, or whether there is change in the rate of urinary excretion.

In view of the work of Vincent (1959), many current ideas on the relationship between rising intra-vesical pressure and reflex contraction of the bladder wall, and on the mechanisms involved in this response, will in the future need a great deal of re-thinking.

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