

Childhood Nocturnal Enuresis: The Prediction of Premature Withdrawal from Behavioral Conditioning

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Predictors of premature withdrawal from a 12-week program of behavioral conditioning for childhood nocturnal enuresis were examined for 47 children treated at a university outpatient clinic. All children were administered the Piers-Harris Children's Self-Concept Scale; parents completed the 55-item Behavior Problem Checklist and the Tolerance Scale for Enuresis. Parents also reported the methods (i.e., random awakening, restriction of fluids, rewards, punishment, medication, other) previously used to control their child's wetting. A stepwise discriminant function analysis revealed that the function containing number of previous techniques used, presence of child behavior problems, and parent tolerance of enuresis was a significant predictor of early termination of treatment.

Behavioral conditioning with a urine alarm has been found to be a relatively successful means of treating childhood nocturnal enuresis. It is more effective than traditional psychotherapy (DeLeon & Mandell, 1966; Sacks, DeLeon, & Blackman, 1974) and pharmacotherapy with imipramine (Wagner, Johnson, Walker, Carter, & Wittmer, 1982); initial cure rates for the urine alarm average 75% (Doleys, 1977). Although many children can become continent using this approach, some are prematurely withdrawn from treatment before complete remission of symptoms can be achieved.

The rate of premature termination from behavioral conditioning has been reported to be as high as 48% (Turner, Young, & Rachman, 1970).

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The causes of early withdrawal are unclear, although lack of cooperation by parents has been found to be related to premature termination (Forsythe & Redmond, 1974). Morgan and Young (1975) found that mothers who prematurely withdrew their children from behavioral conditioning reported being less tolerant of enuresis than did mothers of children who completed treatment. Although Geffken, Johnson, and Walker (1986) found no such relationship, Wagner et al. (1982) reported that parent intolerance of enuresis was a significant predictor of premature withdrawal from behavioral conditioning, but not from pharmacotherapy with imipramine or a waiting list control condition. In their analysis of child-related variables, Geffken et al. (1986) found that children prematurely withdrawn from behavioral conditioning had lower self-esteem and exhibited a higher frequency of conduct problems.

Johnson (1980) indicated that behavioral conditioning with a urine alarm requires "considerable effort and patience" (p. 114) from both parent and child. Parents who recognize the difficulties involved in helping a child become nocturnally continent may be better prepared to comply with urine alarm procedures and eventually complete the treatment program. Such recognition may be related to parents' previous experience in treating their child's enuretic behavior. Specifically, parents whose child completes a urine alarm program may have tried a greater number of enuresis-control techniques than have parents who prematurely terminate treatment.

This study was conducted to assess factors related to parents' decision to prematurely withdraw from behavioral conditioning. Specifically, treatment compliance was analyzed relative to parents' prior treatment experience as well as previously reported predictors of premature withdrawal: parent tolerance of enuresis (Wagner et al., 1982), the child's self-esteem, and frequency of conduct problems (Geffken et al., 1986).

METHOD

A total of 47 children (male = 26, female = 21) between the ages of 5 and 14 ($M = 8.04$) were treated for nocturnal incontinence at a university outpatient clinic. All children were primary nocturnal enuretics who wet the bed at least three nights per week and whose wetting was not a result of organic or neurological dysfunction.

During the initial clinic visit, children were administered the Piers-Harris Children's Self-Concept Scale (Piers & Harris, 1969), while parents completed the 55-item Behavior Problem Checklist (Peterson, 1961) and the Tolerance Scale for Enuresis (Morgan & Young, 1975), a 20-item attitude measure on which higher scores reflect greater intolerance of nighttime wetting. Parents were also asked to report prior experience with a variety of commonly used

enuresis-control techniques (i.e., random awakening, restriction of fluids, rewards, punishment, medication, other). During the second clinic session, children were trained to use the urine alarm as an introduction to a 12-week behavioral conditioning program that utilized procedures described elsewhere (Wagner, 1987). When a youngster attained the cure criterion of 14 consecutive dry nights, treatment was terminated.

RESULTS

Of the 47 parents, 42 (89%) had used random awakening with their child, 39 (83%) had restricted their child's fluid intake, 24 (51%) had tried rewards, 16 (34%) had used medication (i.e., imipramine), and 4 (9%) acknowledged having used punishment. Nine parents (19%) had tried other approaches (e.g., having the child use the bathroom before going to bed, providing support by telling the youngster that others wet the bed, having the child wear diapers). Forty-six (98%) parents indicated having used at least one approach prior to entering behavioral conditioning. The use of one approach was most often associated with the use of another, since 42 (89%) parents had tried at least two methods.

A total of 38 children (81%) completed the 12-week program while 9 (19%) were prematurely withdrawn from treatment. Of those completing the program, 28 (74%) attained the cure criterion of 14 consecutive dry nights, and 10 (26%) continued to wet the bed. A stepwise discriminant function analysis was employed to predict treatment compliance based on the number of enuresis-control techniques, parent scores on the Enuresis Tolerance Scale and the Conduct Problems subscale of the Behavior Problem Checklist, and child scores on the Piers-Harris Children's Self-Concept Scale.

Means, standard deviations, and univariate F ratios for treatment compliance (treatment completion vs. premature termination) appear in Table I. Analysis revealed that of the four predictor variables, the discriminant function containing number of techniques, conduct problems, and parent tolerance of enuresis was statistically significant in predicting treatment compliance, Wilks's lambda = .7912, $\chi^2 = 10.19$ (3), $p < .02$. Parents who had used more techniques, were more tolerant of enuresis, and rated their child as having fewer conduct problems were less likely to prematurely withdraw their child from treatment.

Given the classification coefficients computed for the three predictor variables, prediction equations were calculated. With the use of these equations, 36 (77%) of the 47 children were classified correctly: 29 (76%) of the treatment completion and 7 (78%) of the premature termination groups.

Table I. Means (Standard Deviations) for Predictors by Treatment Compliance

Predictor variables	Treatment compliance				<i>F</i> ratio
	Treatment completion ^a		Premature termination ^b		
Number of techniques	3.05	(1.11)	2.00	(1.00)	6.73 ^c
Conduct problems	4.50	(4.12)	6.56	(4.19)	1.80
Parent tolerance	1.71	(0.47)	1.91	(0.26)	1.44
Self-concept	59.47	(15.98)	61.33	(10.44)	0.11

^a*n* = 38.^b*n* = 9.^c*p* < .02.

DISCUSSION

Results suggest that parents' enrollment of their children in a behavioral conditioning program is not their first attempt at eliminating nighttime wetting. In this study, virtually all parents (98%) reported having tried at least one enuresis-control technique, with the most commonly used approaches being random awakening during sleep and restriction of fluid intake prior to bedtime.

Geffken et al. (1986) suggested that enuretic children who exhibit behavior problems may be less cooperative with treatment procedures, thereby creating frustration for parents and increasing the probability of premature termination. The results of this study suggest that parents of children with behavior problems are more prone to terminate prematurely when they themselves have made relatively few attempts to treat the child's wetting and are more intolerant of enuresis.

Although the discriminant function obtained was statistically significant, it is not recommended for use at this time in selecting children for treatment. The correct classification rate (77%) for the treatment compliance equations was no better than the actual compliance rate (81%) found for children who participated in the study. Additional research is needed to cross-validate the results reported herein and to identify other factors that may improve the predictive power of the discriminant function.

Results of this study do suggest the need for modification of treatment procedures to help reduce the dropout rate for certain groups of enuretic children. A pretreatment assessment is recommended to determine parents' previous treatment experience, their attitude toward enuresis, and their ratings of conduct problems for their child. When parents' prior experience is limited, clinicians can provide pretreatment education to ensure that parents understand all aspects of the urine alarm procedure. Program modifications can include contracting with families to remain in treatment for a

specified period of time (e.g., 12 weeks), incorporating the use of monitoring charts on which nightly compliance with urine alarm procedures is recorded, and preparing both parents and child for the inconvenience involved with urine alarm treatment.

In cases where a high frequency of child conduct problems is found, it may be advisable to couple urine alarm treatment with parent training that focuses on child behavior management techniques. In more extreme cases, it may be necessary to delay use of the alarm until the conduct problems are brought under control. When parents describe themselves as being very intolerant of enuresis, the clinician can attempt to change this attitude by providing basic information about bed-wetting (e.g., etiology, prevalence rates) or meeting alone with parents to determine the source of their intolerance (e.g., interpreting nocturnal incontinence as intentional misbehavior by the child).

Although behavioral conditioning with a urine alarm represents a relatively effective means of treating childhood nocturnal enuresis, the approach will continue to be of limited value for children prematurely withdrawn from treatment. In addition to remaining incontinent, these youngsters may come to view treatment as a failure experience that confirms suspicions that their bed-wetting is extremely resistant to change and therefore likely to continue indefinitely. Since parents typically control a child's access to treatment, clinicians must attend to parents' needs in order to maintain cooperation with treatment procedures. The results of this study suggest that modifications of the standard urine alarm approach are needed depending upon the child's behavioral adjustment and parents' prior treatment experience and tolerance of enuresis.

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