THE THEORY AND METHOD OF CONDITIONING

IN RELATION TO ENUREYSIS AND ITS TREATMENT.

A thesis submitted for the degree of
Doctor of Philosophy in the Faculty of Arts,
University of Adelaide

by


Department of Psychology,
University of Adelaide.
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ACKNOWLEDGMENTS

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ABSTRACT.

The general aim of the investigation is to relate developments in the theory and method of conditioning to the therapy of enuresis.

I The major problems studied are:

I the appropriateness of conditioning methods of treating enuresis in the light of
(a) general theoretical considerations.
(b) the therapeutic effectiveness of the method by comparison with other methods of treatment.
(c) the general psychological effects of conditioning treatment.

II the processes of normal continence development and the etiology of enuresis in relation to conditioning methods of treatment.

III the mechanism of conditioning treatment and its relation to instrumental design and procedure.
It is concluded that there are two major psychological theories of enuresis with differing implications for treatment.

Firstly there is the symptom theory of enuresis, according to which enuresis is merely a symptom of an underlying general emotional disturbance. The implications of this theory are (a) treatment should take the form of psychotherapy aimed at removal of the underlying conflict.

(b) direct conditioning methods are contraindicated because removal of symptoms alone will lead to symptom substitution or exacerbation of anxiety.

Secondly there is the habit deficiency theory of enuresis which view the disorder as a failure to develop the habit of continence sufficiently strongly, and which indicates that direct conditioning is the only form of treatment likely to be effective.

According to the habit deficiency theory any changes in the general adjustment of enuretics following successful conditioning therapy are likely to be beneficial rather than harmful, inasmuch as anxiety secondary to the enuresis is likely to be ameliorated.

Following a survey of the literature on psychotherapeutic and conditioning treatment of enuresis in relation to evidence
of spontaneous recovery, it is concluded that

(a) there are so few adequately reported studies of psychotherapy which have been carried out with reasonably large groups of enuretics, that no firm conclusions regarding the effectiveness of this type of treatment can be drawn.

(b) conditioning treatment is extremely effective in arresting enuresis.

(c) the effectiveness of conditioning treatment is due to the specific stimulus conditions provided by the conditioning instrument and does not result from incidental "suggestion".

(d) the rate of relapse following initial arrest of enuresis by conditioning methods is probably higher than usually reported.

(e) conditioning treatment does not appear to give rise to symptom substitution or to exacerbate anxiety. On the contrary, there is suggestive evidence, mainly from parental observations, that beneficial personality changes often follow successful conditioning treatment, but more objective evidence is required.
The theories of normal continence development which provide the logical bases for the conditioning treatment methods of Mowrer and Crosby are examined. Although both authors appeal to the principles of conditioning to account for continence development, their accounts of the process are in important respects contradictory. Thus Mowrer believes that nocturnal potting procedures play an essential part in continence development, whereas Crosby believes that these procedures may often predispose to enuresis.

It is concluded that there is little soundly established knowledge of the process of continence development, and in particular the role of toilet training requires elucidation.

An examination of the mechanism of conditioning treatment is undertaken and it is concluded that

(a) the treatment process follows the avoidance rather than the classical conditioning paradigm.

(b) any sudden and relatively intense stimulus will serve adequately as the UCS for sphincter contraction and hence Crosby's electrical stimulus per se is unlikely to offer any therapeutic advantages.

(c) in order to facilitate the development of a conditioned avoidance response of sphincter contraction the aversive stimulus should be "turned off" by the response of sphincter contraction.
A modified auditory apparatus (Twin Signal) developed in the light of these considerations is described. This apparatus makes use of a pad electrode and presents two auditory stimuli. The first of these is loud and of short duration. This is followed by an interval of silence of about one minute, after which a buzzer sounds continuously to warn the attendant.

The first field experiment compares the efficiency of the Mowrer, Crosby and Twin Signal instruments, using a sample selected as representative of the total population of 6-1/4 year old enuretics. The results indicate that the Twin Signal is the most effective and the Mowrer is the least effective in terms of initial arrest of wetting, but there is suggestive evidence that the rate of relapse is lower with the Mowrer instrument.

In order to obtain evidence on the general psychological effects of conditioning treatment, 25 enuretics are given a number of tests of adjustment before treatment and are re-tested 6 or 12 months later. A matched control group of non-enuretics is tested and re-tested after a similar time interval. The tests are selected to detect both general mal-adjustment and reactive mal-adjustment.

Although the enuretics and controls do not differ significantly on any of the initial tests, the general pattern
of test results is consistent with the hypothesis that the enuretics differ from the controls chiefly in being more reactively maladjusted. This hypothesis is further substantiated by the retest results. On retest the enuretics show markedly less reactive maladjustment, whereas the control children do not.

A survey of control of micturition in relation to parental practices, attitudes and expectations concerning toilet training is undertaken with 124 enuretics and 121 non-enuretic children. No evidence is found to suggest that toilet training history is of significance in the aetiology of enuresis. Consequently the attempts of Mowrer and Crosby to give conditioning treatment a rationale in terms of assisting the process of normal continence development, gain no support from the evidence.

In an attempt to overcome the problem of the very high relapse rate following initial arrest of enuresis by conditioning methods, a series of animal and field investigations is carried out.

Animal experiment I examines the effects of free shocks in maintaining avoidance responding in rats, and Field Experiment II studies the analogous use of false alarms in conditioning treatment. In common with the results of other investigations, free shocks are found significantly to retard extinction of avoidance responding in the rat.
The results of the field experiment suggest that whilst false alarms may reduce the number of early relapses, the method is of no practical significance since the ultimate relapse rate is not appreciably reduced.

A second experiment with rats is designed to test the effects of different aversive stimulus patterns on the acquisition and maintenance of avoidance responding. In particular, an attempt is made to combine the superior acquisition of the escape pattern of the Twin Signal with the apparently increased resistance to extinction of the non-escape pattern of the Mowrer instrument. To this end, in one experimental group short duration intense stimulation is followed immediately by long duration less intense stimulation. In a concurrent field study this combined stimulus pattern is compared with the standard Mowrer pattern.

The results of both the animal and field experiments are negative in that whilst acquisition with the combined pattern is superior to that with the standard pattern, resistance to extinction is decidedly poorer with the combined pattern.
A final animal experiment is conducted to test the hypothesis that intermittent reinforcement during acquisition of a passive avoidance response will result in significantly increased resistance to extinction.

The results confirm the hypothesis and a final field investigation is undertaken to study the effects of intermittent reinforcement in conditioning treatment.

The Twin Signal in its original form is used. Acquisition is found not to be significantly impaired. Initial resistance to relapse appears to be markedly improved but the follow up period is insufficient to draw firm conclusions regarding the ultimate effect on the relapse rate.

Finally, the implications of the study as a whole are considered. It is suggested that the results strongly support the habit deficiency theory of enuresis and the use of direct conditioning methods of treating behavioural disturbances.

It is argued, however, that it does not necessarily follow that wrong habit theories offer an adequate account of all behaviour disorders or that treatment by the verbal methods of psychotherapy has no place.

Suggestions for further research are offered.