Current Practice

PRACTICAL PSYCHIATRY

Behaviour Therapy for Anxiety States

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An earlier article in this series (22 February, p. 489) dealt with the clinical features of phobic and generalized anxiety states. In the last few years new techniques have been added to the established treatments for these conditions. These are the behaviour therapies, a group of procedures sharing two common features: their derivation from certain learning principles revealed by psychological experiments, and their aim, which is to modify "target-symptoms." In these two ways behaviour therapies differ from psychotherapies, which are based on a psychodynamic theory—usually Freud's—and which approach symptoms indirectly by dealing with the underlying emotional conflicts thought to cause the symptoms.

Confusion can arise if all behaviour therapies are considered together, for though they share common features they are in other ways quite different. Thus aversion therapy and conditioning procedures, such as the familiar pad and bell for enuresis, are quite distinct from one another and differ in turn from the third main method, systematic desensitization. Only the latter is usually appropriate for the treatment of anxiety states, and it is the only method I shall discuss.

Psychological Background

Behaviour therapies have been developed on the basis of extensive research in the psychological laboratory, which has led to an increasing body of knowledge about mechanisms of learning. This in turn has been used to provide a sounder scientific basis for psychological treatment, and the approach is welcome and should certainly be pursued. However, the mere fact of a basis in experimental psychology is no guarantee that treatment will be effective, for psychologists have so far studied in detail only the simplest human psychological processes. Much remains to be done before experimental psychology can provide satisfactory explanations for more than a tiny part of the behaviour of healthy men and women, and still more before it can account for the abnormalities displayed by psychiatric patients. So, until experimental psychology has advanced further doctors must fall back on other ways of understanding their patient's neurotic problems, and some kind of psychodynamic theory will continue to be used. Put in another way, doctors must be prepared to use psychotherapy, derived from psychodynamic theories, alongside behaviour therapy derived from learning theories. It is much too soon to expect to be able to deal with all the phenomena of neurosis with behaviour therapy as the sole treatment. Behaviour therapies will not be put to their best advantage if, as some psychologists have suggested, they are asked to replace psychodynamic theories and supplant psychotherapy. The neuroses are much more complex than some experimental psychologists realize, and in practice combinations of treatment are often required, as we shall see later.

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Systematic Desensitization

The desensitization procedure is straightforward and easily learnt; it could be carried out after a brief period of special training by an interested general practitioner. However, the choice of patients and the detailed description of the disordered behaviour once the patient has been chosen both require specialized skill. Thus, though some practitioners might wish to be able to treat their own patients with desensitization, they would be well advised to obtain special training in the technique first, to seek psychiatric advice when selecting patients, and—at least until they have considerable experience—to have the advice of a psychiatrist or a psychologist who has experience of behaviour therapy when they plan the details of treatment. Only a brief outline of the methods will be given here; those who wish to learn more about the problems which arise in practice and have details of the technique of relaxation are referred to the book, *Behaviour Therapy Techniques*, by Wolpe and Lazarus.

The principles involved are not difficult to understand. Though minor fears can sometimes be overcome merely by encouraging the person to meet the feared situation in a determined way, strong fears do not yield to these common-sense measures. Indeed, they have often been urged upon the patient by his relatives without success. If, however, a patient with a strong fear is first treated in some way that will neutralize the anxiety he experiences in the feared situations, then the fears can be overcome by gradually meeting the feared situations over and over again. Since this process is thought to be effective because anxiety is neutralized in this way it is sometimes called reciprocal inhibition treatment. Recent experiments have suggested, however, that a somewhat different mechanism is at work, and the term desensitization treatment is preferable because it makes no unproved assumptions about the psychological processes which are involved.

Standard Technique

The standard technique has three parts: some procedure to lower anxiety—usually relaxation training; the construction of graded series of anxiety evoking stimuli (the hierarchies); and the presentation of these stimuli to the relaxed patient. As a rule relaxation effectively neutralizes the anxiety which each stimulus tends to evoke, and it is the most widely used procedure. Training usually takes three to six sessions, depending on the method employed. The usual one, which is derived from a much more lengthy procedure devised by Jacobson, is rather like that used in antenatal relaxation training. Other procedures, including those based on hypnotic suggestion, are equally satisfactory. Other anxiety-reducing agents such as the ultra-short acting barbiturate brevital-sodium (Brietal) have also been tried, but it is too early to be able to assess their value.

The second step in treatment is to construct hierarchies of anxiety-evoking stimuli. These "stimuli" can be real

situations or they can be situations which the patient imagines. If desensitization is to go well much care and attention to detail must be given to preparing these stimuli. Most patients who are treated by desensitization have a multitude of phobic symptoms, and a searching inquiry is needed both to elicit the sources of all these fears as well as to disentangle them and then group them into hierarchies. Each hierarchy must have a single theme and contain stimuli which are carefully graded into equal steps from the stimulus that evokes least anxiety to that which evokes most. An agoraphobic patient, for example, usually has many phobias: these commonly include fears experienced in shops, buses, trains, lifts, and small rooms. All share the common feature of fear of closed spaces, and all can therefore be arranged on one continuum—they belong to a single hierarchy. Conversely a single feared situation may turn out to be represented on more than one hierarchy. Thus fear experienced in shops may not only be the result of a phobia of closed spaces, as in our first example, but also contain elements of fear of crowds and of fear of being far from home. In this case three hierarchies would be needed to deal with the original fear adequately. When hierarchies are constructed, it is always important to look for fears concerning people as well as fears of things; for example, phobic patients often fear authority figures or are made anxious by arguments. These simple examples give some idea of the complexity of many severe phobic anxiety states, but even an apparently simple phobia may have unexpected ramifications when the matter is gone into carefully: even monosymptomatic phobias can seldom be treated with only one hierarchy.

The third and final stage of treatment is to present the graded stimuli one by one to the relaxed patient, who is asked either to imagine the situation which evokes anxiety or to go out and meet it. Each stimulus is repeated until the patient no longer experiences fear, when the next item in the hierarchy can be taken. Treatment continues, usually once weekly, until all the hierarchy items have been dealt with. Desensitization in imagination is easier to use, for it is often difficult to arrange for the patient to meet suitable real situations in the order required for the hierarchy. Fortunately desensitization in imagination is usually at least as effective as the use of real situations.

Recent research has proved that it is essential to combine relaxation with the repetition of graded stimuli if fears are to be overcome, either alone being very much less effective than the full desensitization procedure. Of course desensitization, like many other psychiatric treatments, contains elements of suggestion and inevitably involves the doctor-patient relationship, both of which are known to be capable of producing changes in the symptoms of neurotic patients; however, careful investigation has shown that desensitization has specific effects of its own, though these are of course supplemented by non-specific elements like suggestion and relationships.

Changes Produced by Treatment

Desensitization effects are specific to the phobia which is the target symptom, and this has been shown to change more rapidly and more completely during desensitization than it does with either psychotherapy or suggestion. On the other hand, symptoms such as depression, obsessions, and depersonalization, which are usually present in phobic patients, change no more with desensitization than with these control procedures, indicating that there is no specific effect upon them. Social adjustment also improves during a course of desensitization treatment, so that patients work better, enjoy their leisure more, and get on better with other people. Such changes are, however, related only indirectly to the specific treatment procedure and do not usually begin to appear until the target symptom has started to improve. These changes in social adjustment differ from those observed during psychotherapy, where they have been shown to take place quite independently of changes in symp-

toms. In desensitization treatment it appears that patients have first to be relieved of some of the distress which their symptoms cause, and that once this happens they are able to take steps which lead to improved social adjustment and better interpersonal relations. This sequence is important, for it emphasizes that desensitization demands considerable effort on the patient's part once his symptoms begin to improve. For this reason personality must be assessed carefully when patients come for treatment, and traits of social timidity, self insecurity, and lack of drive and initiative must be looked for. Patients who show these to a marked extent may fail to build on the symptomatic improvement which desensitization gives them.

Symptom Substitution

Finally the question of symptom substitution must be considered. Freudian theories predict that, if underlying emotional conflicts are not dealt with, other symptoms will appear when a target symptom is treated. Thus the patient merely exchanges one disability for another. It is important to remember that it is not only other symptoms which can be substituted for treated symptoms; social disabilities can also take their place. Thus a patient might lose a phobia at the expense of his ability to take part in social relationships. Finally, the price for the patient's symptomatic improvement may be paid by another family member, who develops neurotic problems as the patient improves. This is the familiar concept of neurosis as a family disorder in which a delicate equilibrium has been established between the neurotic problems of different family members, an equilibrium which can easily be disturbed by treating one of them. All these problems can occur occasionally when behaviour therapy is used, but they occur much less often than was originally predicted by psychotherapists, and, to date, controlled inquiries indicate that they are no more frequent with behaviour therapy than with other treatments. There is certainly no reason to withhold treatment for fear of consequences of this kind.

Selection of Patients

Having seen how desensitization is carried out and what effects it produces, the problems of case selection are easier. In general, desensitization is useful for phobic states and for other conditions in which anxiety or its somatic accompaniments occur in clearly defined circumstances. Indications can be discussed best by considering diagnostic groups in turn.

Simple Phobias

These respond rapidly to desensitization, which is usually the treatment of choice. Of course simple or monosymptomatic phobias rarely present a serious medical problem; isolated fears of heights, thunderstorms, animals, and other things are widespread among adults and even more common in children. It is therefore wise to inquire carefully into a patient's reasons for seeking treatment for such a condition. In many the reasons will be straightforward: such phobias can at times become so intense that, though isolated, they interfere with the patient's life considerably. A very severe bird phobia can lead to a patient remaining indoors; a severe phobia of storms can make life intolerable for several months of the year. At other times the patient seeks treatment because she has moved to another place or a new job in which she has to meet the objects of her phobia more often. Such patients can be helped with desensitization.

Among those who seek treatment, however, will be others whose phobias are no more intense than those of many people who have never consulted a doctor. Their reasons for seeking treatment are very important. Sometimes the patient is suffering from a depressive illness which has made him less able to

cope with a phobia which has been present for years: in this case it is the depression which requires treatment, not the phobia. Sometimes resistance has been lowered by an accumulation of other problems, and these require attention before treatment of the phobia is considered. Careful inquiry must therefore be made about other emotional difficulties, especially in the patient's marriage and immediate family. Sometimes the patient presents the phobia to the general practitioner as a way of gaining an interview about another problem which is too difficult to discuss at the first meeting. All these possibilities should be considered before desensitization treatment is arranged.

Social Phobias

Social phobias are also common, but they are less well known. Morbid anxiety in social situations can arise in more than one way. It is often part of a life-long personality disturbance, which shows itself in many aspects of social relationships; such patients do not respond well to behaviour therapy. There are, however, other patients who become very anxious in social situations, but who do not show either marked abnormalities of personality nor any striking inability to deal with other problems in their lives. These are the patients with social phobias. This kind of phobic anxiety is usually greatest in situations such as theatres, restaurants, or public transport, in which the patient can be observed by other people. Careful inquiry must always be made to distinguish these complaints from the paranoid delusions experienced in early schizophrenia and from the personality disorders mentioned above. Social phobias respond well to desensitization, and though no satisfactory controlled trial has yet been carried out to compare the results with those of other treatments such as group psychotherapy there is sufficient clinical evidence to justify an assessment for desensitization if this treatment is available. Careful evaluation of the condition is needed, and the psychiatrist may consider that a particular patient will respond better to simple support, group psychotherapy, or other measures.

Agoraphobia

This is the phobic disorder most commonly encountered both by general practitioners and by psychiatrists. The condition runs a prolonged and fluctuating course and is difficult to treat. Desensitization techniques have proved a valuable addition to other methods, but they are seldom sufficient by themselves. The reason for this becomes clear when the symptomatology of the condition is reviewed and related to the effects of desensitization which have already been described. Agoraphobia is not just a more intense form of the simple phobic disorders: there are important qualitative differences. The distinction has long been made by psychiatrists of all persuasions, including Freud, but the point is seldom considered adequately in writings on behaviour therapy, and this omission has led to confusion about the part which desensitization can play. Among these important differences are the presence in the agoraphobic patient of depressive symptoms, generalized anxiety, panic attacks, depersonalization, and obsessions. In addition interpersonal difficulties are very common, and so are personality problems, especially dependency and difficulties in expressing aggressive feelings. Moreover, partly as a consequence of the latter, emotional problems are frequently encountered in the patient's immediate family, where the phobia is sometimes playing a part in maintaining abnormal interactions between family members—for example, a wife may dominate her husband by insisting that he accompanies her everywhere.

The widespread nature of the disorder in agoraphobic patients contrasts with the specific and circumscribed mode of action of desensitization, which acts primarily on the phobias,

its effect on the rest of the disorder being indirect. When these other problems are not too severe they have been found to improve as phobias subside, and in these cases desensitization can be used alone, provided that care is taken to deal with more than the obvious fears of travelling and of open spaces. However, when depression, general anxiety, obsessional symptoms, or interpersonal problems are severe patients make little progress with desensitization used alone; in these cases it must be combined with other treatment. The choice of this additional treatment depends on a careful assessment of the disorder. If depressive symptoms are marked antidepressant drugs are needed, either amitriptyline or a combination of phenelzine and chlordiazepoxide. The use of these drugs has recently been reviewed in *Today's Drugs* (20 April 1968). In picking patients who require antidepressant treatment attention must be paid not only to the presence of clear-cut depressive symptoms but also to the history; the sudden onset of phobias in a patient whose previous personality was stable suggests that there is a hidden depressive component in the illness.

When interpersonal problems are severe they, too, may require special treatment. Sometimes a behavioural technique can be used, such as "assertive therapy," in which the patient is encouraged to express hostile feelings more openly and in socially acceptable ways, and thereby helped to develop greater self-confidence. When these problems are more intense and associated with other emotional difficulties psychotherapy will be required. Desensitization may then be unnecessary, or it may be added usefully at the end of psychotherapy to deal with the residual phobic symptoms which are sometimes left at the end of an otherwise successful course. Similarly, if family problems are intense, interviews with husband and wife may be needed. This widely based approach, which deals separately with many aspects of the disorder, has been called "broad-spectrum" behaviour therapy, but the term has little to commend it because the ingredients other than desensitization are part of everyday psychiatric treatment and have no particular relation to learning principles.

Recent research has added other refinements to the procedure of case selection. A controlled investigation has shown that a good response to desensitization is found in patients who have few neurotic symptoms other than their phobias and who have little generalized anxiety, few obsessional symptoms, a personality which is free from traits of undue dependency, and a family situation in which there is little or no evidence that phobias are playing any importance in maintaining abnormal relationships. It might be supposed that these criteria are so severe that they pick out patients who would do well with any treatment—or indeed with no treatment at all. However, the same controlled investigation has shown that such patients still respond better to desensitization than to psychotherapy.

Selection of agoraphobic patients for behaviour therapy therefore requires a thorough psychiatric assessment, but the general practitioner will have much to contribute to this, especially his knowledge of the patient's previous personality and family situation.

Anxiety States

Behaviour therapy, whether by desensitization or other methods, deals with anxiety which arises in relation to circumscribed cues which can be identified either in the patient's environment or in relation to feeling states such as anger. It is therefore primarily a treatment for phobic anxiety states. States of general anxiety are much less easy to treat in this way. However, some conditions which first appear to be states of generalized anxiety are found on more detailed inquiry to contain important components of situational anxiety, and these can be dealt with by behaviour therapy. Unless these situational elements can be identified, behaviour therapy as such cannot be used. Of course, some of these general anxiety states are

really depressive illnesses and will require antidepressant treatment, while others will respond to anxiolytic drugs, though it may sometimes be better to avoid these because of the risk of drug dependency. If neither of these lines of treatment is suitable, relaxation therapy can be tried. In this case the presentation of stimuli, which would be included in the full desensitization procedure, is omitted and relaxation exercises are given alone. The value of such treatment is hard to assess, because very few adequate controlled trials have been reported.

Obsessional Neuroses

Less is known about the value of desensitization for obsessional neuroses. Clinical experience suggests that it is of limited value, and that they respond to behaviour therapy much less readily than do phobic states, and usually do so only if the obsessions occur only in a few clearly defined situations. Even if treatment is confined to these situational cases results are limited. Research is continuing, and more useful behaviour therapy techniques may eventually be evolved.

Psychosomatic Disorders

Within the large and ill-defined group of psychosomatic disorders there are patients who respond to desensitization treatment. Firstly, there are some symptoms which are an indirect expression of anxiety and which appear only in response to environmental stimuli; secondly, some symptoms are evoked or worsened by feeling states such as unexpressed hostility. Thirdly, patients experience further anxiety when their somatic symptoms have started; for example, there are

some asthmatic patients in whom the first sensations of bronchospasm provoke anxiety, thus leading to a mounting spiral of distress. So far controlled investigations are few, and there is little definite evidence about the value of the methods. Nevertheless, they often merit a trial, sometimes alone but more often as part of a wider plan of medical and psychiatric management.

Conclusion

It can be seen that behaviour therapy has an important but specific place in the treatment of phobic and other anxiety states. Until recently behaviour therapy was unfortunately the subject of the kind of exaggerated claims and counter-claims which are a familiar accompaniment of many advances in medicine. Its true value is now becoming apparent, and it is clear that existing techniques of behaviour therapy have a valuable part to play in the treatment of carefully chosen anxious patients. Even more important, it is equally clear that further research along these lines, introducing other principles derived from experimental psychology, is likely to yield further important advances in the near future.

FURTHER READING

- Wolpe, J., and Lazarus, A. A., *Behaviour Therapy Techniques*, 1966. Oxford.
 Gelder, M. G., Marks, I. M., and Wolff, H. H., *Brit. J. Psychiat.*, 1967, 113, 53.
 Gelder, M. G., *Brit. J. med. Psychol.*, 1968, 41, 39.
 Meyer, V., and Crisp, A. H., *Brit. J. Psychiat.*, 1966, 112, 367.
 Wolpe, J., *Psychotherapy by Reciprocal Inhibition*, 1958. Stanford, U.S.A.

TODAY'S DRUGS

With the help of expert contributors we print in this section notes on drugs in current use.

Insulin

Insulin is a polypeptide hormone secreted by the β -cells of the pancreas. It was first extracted from animal sources and given to patients with diabetes mellitus in 1922,¹ and, since then, purer extracts have become available. In 1960 the amino-acid sequence of the molecule was established, and more recently synthesis of insulin has been performed by separate groups of workers in three centres.²

The molecule is relatively small, with a molecular weight of less than 6,000, and is composed of two polypeptide chains (A and B chains) linked by two disulphide bridges. It is probable that the chains are synthesized separately in vivo and that coupling is the last stage in the process. Insulins from several species have been analysed, and small differences in amino-acid composition found. Pork and beef insulins, the two used routinely in the treatment of diabetic patients, differ only in the C-terminal amino-acid of the B chain. However, this slight difference may assume importance in the rare event of a patient developing antibodies to injected insulin with a progressive rise in insulin requirement as a consequence. In these circumstances a change of preparation may restore insulin requirements to normal.

Pharmacology

Insulin can be given only by a parenteral route, as it is inactivated when taken by mouth. Recent attempts to protect the hormone from acid hydrolysis by coupling to a carrier

molecule have been unsuccessful, and no effective oral preparation is available. The hormone is bound to protein and apparently exerts its effects not only from the plasma compartment but also by moving into cells. Insulin can be detected in urine, but only in very small amounts, and the precise renal mechanism governing its excretion is not known.³ The hormone is broken down to its constituent polypeptide chains by an insulinase found mainly in the liver.

The secretion of insulin by the pancreas is regulated primarily by the level of blood sugar, but many hormones may play a modifying role. Recent evidence suggests that the release of insulin in response to a stimulus may be mediated by cyclic 3'-5'-adenosine monophosphate (cyclic A.M.P.) which is derived from adenosine triphosphate (A.T.P.) by the activity of the enzyme adenylyl cyclase. Cyclic A.M.P. has been shown to be a possible mediator of the actions of several hormones (including adrenocorticotrophic hormone, antidiuretic hormone, and luteinizing hormone), and may have a central role in the initiation of the secretory processes in many endocrine organs.

Insulin was originally thought to act by facilitating the transport of glucose into cells, thus reducing high blood sugar levels and the consequent glycosuria. There is now evidence that insulin also activates an enzyme concerned in the synthesis of glycogen from glucose, stimulates the formation of D.N.A. and R.N.A. (and hence of cellular proteins), and promotes the storage of fat in adipose tissue. Several other activities have been suggested, but the evidence for them is not as fully established.

Aetiology of Diabetes

The observation that diabetes mellitus followed the removal of the pancreas led to the conclusion that the features of the