THE USE OF SYSTEMATIC DESENSITIZATION IN PSYCHOTHERAPY

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As the result of experiments conducted during the years 1947-48, Wolpe[1] was the first to systematize the principle of reciprocal inhibition in its application to the field of psychotherapy. He provides evidence that neurotic behaviour is 'persistent unadaptive learned behaviour in which anxiety is almost always prominent and which is acquired in anxiety-generating situations'.[2, 3] Successful therapy of the neuroses, therefore, would depend on the reciprocal inhibition of neurotic anxiety responses, i.e. the suppression of the anxiety responses as a consequence of the simultaneous evocation of other responses which are physiologically antagonistic to anxiety. Wolpe[4, 5] constructed an elaborate therapeutic system based on the assumption that if a response which is incompatible with anxiety can be made to occur in the presence of anxiety-producing stimuli it will weaken the bond between these stimuli and the anxiety responses. Whereas most psychotherapists report cured or improved cases in the vicinity of 60%, Wolpe claims a 90% level of cures or 'marked improvements' with his methods. By applying the x^2 test for significance, he proved that it is highly improbable that the higher proportion of his successes are due to chance factors. Arising from this, the following query has frequently been raised: Would Wolpe's techniques prove as effective in the hands of other therapists?

This paper illustrates that Wolpe's technique of 'systematic desensitization based on relaxation' has proved highly effective in the treatment of anxiety states by two independent psychotherapists. The illustrative cases were treated individually by one or other of the co-authors. Although the limited scope of this article covers primarily the use of desensitization, Wolpe has described a wide range of therapeutic methods to cover the entire field of neurotic behaviour disorders.

The rationale and application of systematic desensitization based on relaxation first appeared in this *Journal* in 1952. It involves a planned attack on neurotic anxieties, designed to reciprocally inhibit these unadaptive reactions by means of relaxation responses. Jacobson[6] has shown that intense muscle relaxation affects the autonomic nervous system so that the characteristic effects of anxiety are inexorably suppressed. It is therefore to be taken as axiomatic that relaxation inhibits anxiety—their concurrent expression is physiologically impossible.

PROCEDURE

Wolpe's articles[4, 5] on reciprocal inhibition therapy contain descriptions of numerous types of techniques. Because the present article is restricted mainly to systematic desensitization, we propose to present a detailed description of this procedure only.

An inquiry is first conducted in order to ascertain which stimulus situations provoke anxiety in the patient. The patient is told that he can add to or modify this list at any time. The stimuli are then categorized by the therapist and the patient is asked to rank the stimuli in order, from the most to the least disturbing. This ranked list of noxious stimulus conditions is referred to as the hierarchy. In case 3 for example, one would refer to the 'ambulance hierarchy' and the 'hospital hierarchy.' Hierarchies can contain from 5 to 25 items. The hospital hierarchy mentioned above consisted of the following stimulus situations: a hospital in the distance, a hospital ten corners away, walking past the hospital, standing outside the gates, walking in the grounds, standing outside the foyer, in the foyer, walking in the corridors, standing in a small ward of 4 beds, in a larger ward, in a surgical ward with a few bandaged people in bed. The construction of the relevant hierarchies generally takes 1-3 interviews and the patient is concurrently given practice in hypnotic and relaxation procedures. Hypnosis is not an essential requirement, and in those cases where the patient refuses to be hypnotized or requires prolonged practice the procedure can be omitted and deep non-hypnotic relaxation employed instead.

When the hierarchies have been worked out, the subject is told which stimuli are to be presented in the individual session and advised to signal with his hand if a stimulus presentation disturbs him unduly. This is an important instruction and should on no account be omitted, for the arousing of anxiety during the session is sometimes extremely damaging. In our experience it has been found that with most patients it is possible by closely observing his facial expressions, bodily tension, respiration and so forth, to perceive such disturbances before the patient actually signals. When such disturbances occur the therapist immediately 'withdraws' the stimulus and calms the patient. No session should be concluded when a disturbance occurs, but before rousing the patient the therapist should continue and present a further 'easy' stimulus which has already been successfully overcome. The reason for this is to be found in the commonly observed fact that the last item of any learning series is well retained.[7] Anxiety which occurs at the *end* of a session is likely to require a longer period before dissipating.

When the preliminary instructions have been given, the patient is relaxed (hypnotically or otherwise) and then told to visualize the various stimuli; e.g. 'Picture a hospital in the distance . . . Now stop picturing that and go on relaxing.' Each stimulus is visualized for 5-10 seconds and 2-4 different items are presented each session. Each item is generally presented twice. When the requisite number of stimuli have been presented the patient is slowly roused and then asked for a report on his reactions. If the items were visualized vividly and without undue disturbance, the therapist then proceeds to the next stimuli in the following session. The items lowest in the hierarchy (i.e. the least disturbing ones) are introduced first and the therapist proceeds slowly up the list depending on the progress achieved and the patient's reactions. In this way it is possible for the patient to eventually picture formerly noxious stimuli without any anxiety whatever. This ability to *imagine* the noxious stimulus with tranquillity then transfers to the real-life situation (see below).

ILLUSTRATIVE CASES

Case 1

A married woman of 34 was referred for treatment of an anxiety neurosis of 5 years' duration. She had received intermittent treatment during this period, including a brief spell of psychoanalysis, without apparent success. Two weeks before her first interview she had been advised to consider the possibility of undergoing a leucotomy.

She complained of attacks of fear with sweating, trembling and severe headaches. A wide variety of situations appeared to provoke these attacks, which tended to occur most severely and frequently in the late afternoon and in dull, overcast weather. The anxiety-producing situations included walking in the street, being outdoors in the afternoon, shopping, telephoning, crowds of people, and places of public amenity. She also reported an inability to cope in social situations and disturbing feelings of inadequacy and inferiority. Her sexual activity had been disrupted in recent months as the anxiety had increased, and was unsatisfactory. She had been taking 2-3 'tranquillizing' tablets per day for a short period with slight, variable results.

Application of the thematic apperception test and the Willoughby neurotic tendency inventory[8] revealed neurotic trends such as guilt, hypersensitivity and a marked lack of confidence (the Willoughby score was extremely high—87—indicating severe neurotic disturbance).

The patient was instructed in the use of assertive responses and deep (non-hypnotic) relaxation. The first anxiety hierarchy dealt with was that of dull weather. Starting from 'a bright sunny day' it was possible for the subject to visualize 'damp overcast weather' without anxiety after 21 desensitization sessions, and 10 days after the completion of this hierarchy, she was able to report that, 'The weather is much better, it doesn't even bother me to look at the weather when I wake up in the morning' (previously depressing). In addition to this improvement she was also able to go out for short periods during the afternoon. The following hierarchies were then dealt with: telephoning, shopping, having guests at the house, walking in the street, going to places of public entertainment, sitting in the garden in the afternoon.

Two weeks after the completion of the last hierarchy, the patient was given the Willoughby test again. Her score had dropped 40 points to the slightly inflated score of 47. There was also increased sexual responsiveness, a slight improvement in interpersonal relationships and increased self-confidence. The patient was now taking a refresher course in stenography with the intention of obtaining employment. She had not worked for 7 years. She voluntarily reduced her dose of 'tranquillizers' to one a day and dispensed with them completely 1 week later.

At this stage the patient's husband fell seriously ill and she was able to support him emotionally despite the considerable effort involved. As her husband's health improved, she suffered a minor relapse for 2 weeks and then returned to her improved state spontaneously. (A similar post-stress reaction has been reported by Basowitz *et al.*[9] in their study of paratroop-trainees in the US. These observations suggest an interesting and profitable line of investigation.)

During the course of therapy, part of the reason for the development of the anxiety state in this patient was unearthed. When she was 17 years old she had become involved in a love affair with a married man 12 years her senior. This affair had been conducted in an extremely discreet manner for 4 years, during which time she had suffered from recurrent guilt feelings and shame—so much so, that on one occasion she had attempted suicide by throwing herself into a river. It was her custom to meet her lover after work *in the late afternoon*. The dull weather can be accounted for, as this affair took place in London.

After 8 months of treatment, comprising 65 interviews devoted largely to systematic desensitization, this patient was 'much improved' in terms of Knight's 5 criteria.*

Case 2

A 32-year-old medical practitioner stated that he had developed a condition of 'psychic impotence'. He emphasized that he was already fully aware of the aetiological considerations—he first experienced sexual difficulties 3 months previously when he was harassed and in a state of tension. 'Since then, I enter sex with a feeling of uncertainty and am frequently unsuccessful.'

This case is atypical in that no 'anxiety hierarchy' was constructed, but the patient was conditioned to become completely relaxed before the sex act. This required 8 treatments in all. After 4 interviews he had become proficient at relaxation and systematic desensitization was then begun. This consisted of his visualizing certain pre-coital scenes accompanied by hypnotic relaxation. In a 17-month follow-up there has been no recurrence of the disturbance.

Case 3

A 14 year-old boy was referred for treatment of a 'simple' phobia. He had suffered from a fear of ambulances and hospitals for a period of 4 years. He stated that he was frightened by the sight of ambulances and avoided them wherever and however possible, e.g. by planning his journeys in advance and changing direction when an ambulance was sighted. He reported having fainted on several occasions when an ambulance was near by. He was also scared of hospitals and nursing homes and refused to visit these institutions.

His social and scholastic adjustments were both satisfactory and systematic desensitization was commenced after an initial period of training in relaxation. Separate hierarchies of noxious situations were constructed for the ambulance and hospital phobias. The ambulance-hierarchy ranged from easy (non-disturbing) stimuli such as a parked ambulance in the distance and a derelict ambulance in a scrap-yard, to difficult ones like sitting in an ambulance (*a*) next to the driver or (*b*) in the back. In the hospital-hierarchy the first easy situation was a distant hospital which could be barely seen and the final one, a surgical

* Symptom improvement, increased productivity, improved adjustment and pleasure in sex, improved interpersonal relationships, increased stress-tolerance.[10]

ward. Three days after the third desensitization session, the subject walked past a parked ambulance with its rear doors open and experienced no anxiety. Two further situations of a similar nature occurred during the course of therapy and neither of these evoked fear. After 10 interviews he was much improved and was able to visit the hospital and approach ambulances without difficulty. After a 3-month period there has been no recurrence of the earlier fears. A prolonged follow-up of this case is being undertaken.

Case 4

A 34-year-old engineer was treated for a speech disturbance characterized by lengthy and frequent 'word blocks', accompanied by considerable tension and facial grimaces. When first interviewed he stuttered on about 12-25% of words, with 'blocks' averaging 3-4 seconds. His attitude towards speaking situations was poor and he experienced difficulty in handling inter-personal relationships. His Willoughby score was 57, indicating a high basal level of neuroticism. He received 30 hours of therapy over 9 months. Therapy sessions were usually administered once a week. Training in progressive relaxation was followed by systematic desensitization. Among others, the following hierarchies were treated: time-pressures (especially speaking on the telephone, as he conducted many of his occupational affairs by long-distance calls), telling jokes, public speaking, difficult 'audiences' i.e. specific people with whom he had speech difficulties.

Progress was gradual, but by the termination of therapy a substantial gain in speech fluency had been achieved. He is still seen once every 3 months and the gain appears to be permanent, with occasional deteriorations occurring during periods of stress. He is under instruction to continue relaxation and solitary speech practice at his own convenience, and also to increase the frequency and duration of these activities whenever a period of stress is encountered.

Two innovations in this case should be mentioned. The patient was instructed to practise daily speaking (reading) aloud when alone. The rationale for this procedure is based on the 'spread of effect' phenomenon, positive transfer of training, and the observation that most stutterers speak more fluently when not in company. Stuttering appears to be essentially a *social phenomenon*. The second modification employed in the present case was that of speech practice in noxious situations (e.g. a public hall) under controlled conditions of relaxation. The patient was required to make a public address and accordingly was made to practise the actual speech in the hall on 6 occasions before the actual event, alternately relaxing and speaking. In this way he was enabled to make the speech with only a few blocks when the event took place. Generally, the symptoms were all greatly reduced and the stuttering pattern characterized by very occasional complicating sounds or facial grimaces. His Willoughby score had decreased. During the period of therapy he had become engaged and seemed to be managing inter-personal relationships more easily. He was recently married and delivered a completely fluent wedding speech.

Case 5

A married woman of 29, who had been a competent theatre sister in England for a number of years. She stated that from as far back as she could remember she had been a tense and anxious person, but as the result of a traumatic incident at the age of 24 she developed overwhelming phobic reactions to dogs. Accordingly, she underwent more than 3 years of psychoanalysis, but towards the end of this period her condition had deteriorated and, as it was interfering with her work, she was forced to resign from the hospital. In the hope that a change of environment might improve her condition, she and her husband came to South Africa. When first interviewed, she said that while she had overcome her fear of dogs, she was in a state of chronic anxiety and felt that suicide was her only release. Her rigid posture with perpetual tremblings and clammy hands indicated a deep-seated anxiety condition. It seems that the psychoanalytic treatment had merely blanketed her specific phobia with general anxiety.

Treatment consisted, in the first place, of 15 training periods in progressive relaxation. After 6 weeks' treatment (28 interviews) she responded well to hypnotic techniques and a further 4 interviews were devoted to deep hypnotic relaxation. At this stage the patient reported that she was generally relaxed and complacent in nearly all situations but that her original phobia for dogs had returned. An anxiety hierarchy was constructed and systematic desensitization applied. At first she reported acute disturbance when visualizing the feeblest scene (a small dog in the distance) but after 25 hypnotic desensitization treatments she was able to report only relatively mild anxiety when visualizing herself near a group of angry and snarling dogs. It took a further 4-5 weeks, however, before the patient was able to enter real-life situations involving dogs without experiencing acute anxiety (Wolpe states that there is sometimes a tendency for the real-life improvement to lag behind somewhat). At this stage, the patient was discharged from therapy, but returned about 3 weeks later and complained that her original phobia for dogs had returned. After only 3 further hypnotic desensitization treatments her phobia disappeared. She was seen 7 months later before returning to England. She reported that she was perfectly well and that she was returning to her previous hospital job; 5 months later she wrote a letter stating that she was still completely over her trouble and had not relapsed in any respect.

DISCUSSION

Two procedural problems which require clarification are (1) the optimal number of stimuli to be presented per session and (2) the optimal duration of stimulus presentations.

On theoretical grounds one would predict that the fewer stimuli presented at any one session, the more effective would be the result. Too many stimuli presented in close succession increase the risk of retroactive inhibition (interference) and there is abundant evidence to prove the superiority of distributed over massed practice.[7] Nevertheless, the therapist should not proceed too slowly as this might affect the patient's confidence in the treatment.* Regarding the duration of stimulus presentations, we have as a general rule used brief presentations (about 8 seconds) for the first few items in any hierarchy, increasing the time periods as a function of the patient's adaptation. No negative effects can be traced to this procedure, but we are not in a position to claim that this is the most efficient temporal arrangement. Further evidence on this specific point is required.

An extremely important problem raised by Wolpe is the transfer of 'consulting-room desensitization' to real-life situations. He quotes a dramatic example[4] of this transfer in a patient with a human-blood phobia who, very shortly after desensitization, was able to actively assist the victim of a serious road accident. Evidence is also presented by the case of a 20-year-old woman seen by one of us, on 5 occasions only, during a brief holiday in Johannesburg, who complained of long-standing acrophobia (among other things). After the second desensitization session, she was able to stand on a fifth-floor balcony without discomfort. Four months after her return home, she wrote to say that she had successfully undertaken a horse-riding excursion in very rugged mountain terrain. In addition to these two excerpts, the illustrative cases reported in this article also suggest that transfer is both positive and lasting.

The following are some additional impressions of the desensitization technique:

Our experience has been that the greatest benefit is derived when the therapist commences desensitization on the patient's most pressing current problem. An early desensitization success tends to speed up subsequent learning processes.

An observation not mentioned by Wolpe is the spontaneous recurrence of the anxiety symptom in some instances. In these cases, however, the spontaneous recurrence generally dissipates fairly rapidly and the patient returns to his improved condition with little further effort. These spontaneous

* In the present series 2-4 items were presented per session.

recoveries of former anxiety symptoms, while of brief and sporadic nature, must nevertheless be handled with extreme care because of the feelings of acute depression which they usually engender in the patient.

What conditions indicate systematic desensitization therapy? On theoretical and experimental grounds (see Gantt[11] and Jones[12] for example) it may be expected that phobic states, where concrete and definable stimuli produce the neurotic reaction, would be most amenable to this technique. In fact, wherever clinical symptomatology permits the ready construction of appropriate hierarchies, and where specific rather than 'free-floating' anxiety is present, systematic desensitization is strongly indicated.

SUMMARY

A detailed description of Wolpe's systematic desensitization psychotherapy is presented.

Five selected cases treated individually by one or other of the co-authors are described. The favourable results obtained indicate the value of these methods in the management of various types of neurotic disturbances.

Some clinical observations and additional suggestions which might assist in the development of the technique are noted.

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