

to anticholinergic drugs, is treatable with equal or greater efficiency by L-dopa alone.

In our series the patient's age, the severity and duration of the disease, and the time since the last operation did not influence the therapeutic response. One limiting factor in both the "surgical" and "non-surgical" groups of patients was hypertension. Pre-existing hypertension (diastolic B.P. >100 mm Hg but <110 mm Hg) was found in 100% of patients showing little or no response and in only 25% and 33% respectively of those showing a marked or moderate response to treatment. No other obvious cause of a poor response was found; the average daily dose of L-dopa attained by this poorly-responding group was 3.3 g which is similar to the average final dose in the whole series (3.1 g).

Controllable side effects were seen in almost all patients; a note of caution is sounded by the occurrence of femoral neck fractures in two women, one during the trial and one shortly afterwards when the drug was reintroduced. Both were post-menopausal and both had been severely restricted in their activities by akinesia and rigidity. Both showed considerably increased mobility, and perhaps this sudden bound in activity against a background of disuse and of postmenopausal osteoporosis was sufficient to overstress the femur; in one case there was no apparent trauma and in the other it was minimal.

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# Prolonged Exposure: a Rapid Treatment for Phobias

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## Summary

Ten adult patients with long-standing specific phobias were treated by prolonged continuous exposure to their phobic objects in fantasy and reality without avoidance. All patients were greatly helped by four to five hours' treatment in two or three sessions, and all improved more after practice than after imaginal sessions. The treatment method is more economical and efficient than other methods described so far.

## Introduction

Systematic desensitization has often been shown to be of value in the treatment of phobias (Marks, 1969), but is usually more effective in specific phobias than in agoraphobia. A previous trial (Marks, Boulougouris, and Marset, 1971) showed that another technique, implosion (or flooding), was

more effective than desensitization in agoraphobia and equally effective with specific phobias. In a more recent study of flooding (Watson and Marks, 1971) the patients were helped less than in the earlier trial. Watson and Marks gave imaginal sessions only, whereas Marks *et al.* (1971) used practice as well as imaginal sessions; it appeared that additional treatment in practice increased the effectiveness of treatment in imagination. Previous experience also suggested that prolonged practice sessions might be more effective than shorter ones, particularly when they could be devoted continuously to overcoming avoidance of or escape from the phobic object or situation.

This paper describes a pilot study of prolonged exposure in practice in 10 patients with specific phobias; clinical and physiological variables were monitored throughout treatment. As these patients can usually be attached to a polygraph while in the phobic situation more easily than those with agoraphobia, only specific phobias were used in this preliminary project.

## Patients

All the patients were sufficiently distressed and disabled by their phobic symptoms to have requested treatment from their general practitioner. All were adults, presenting on account of recent complications of phobias which had been

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present since early childhood. Their handicap was due to their phobic disorder, and only one had other major psychiatric problems. Three patients had had no previous treatment, three had received slight benefit from imaginal flooding treatment in a previous trial, one had had two years of analytic psychotherapy in the past without effect on her phobia, and one had attended a psychotherapist weekly during the previous year.

### Case Reports

*Case 1.*—A 27-year-old male computer programmer had been afraid of balloons for about 20 years. He asked for help in the autumn of 1969, after becoming engaged, because he felt unable to face the possibility of encountering balloons in the travelling, shopping, and party-going which would be required of him over Christmas. Previously he had avoided such activities.

*Case 2.*—A 20-year-old woman was an efficient secretary who had been afraid of cats since the age of 6. She asked for treatment because she became unable to walk down her home street after a neighbour had bought a pet cat some months earlier. She had to leave home by the back door after her parents had ascertained that no cats were present, and had to travel to and from the station by car. She had frequent dreams of cats attacking her and being under her bed.

*Case 3.*—A married woman of 21 requested help for her long-standing feather phobia because of increasing concern that her children might bring home a feather. She could tolerate no feathered objects such as pillows and certain toys in her home.

*Case 4.*—A 20-year-old university undergraduate asked for treatment of her water phobia because she did not wish to restrict the activities of her fiancé whom she hoped shortly to marry and who enjoyed athletics, swimming, boating, and seaside holidays. She had been unable to be on, near, or in water since early childhood, could not submerge her face in water, and had always been too frightened of water to learn to swim.

*Case 5.*—A 23-year-old secretary, afraid of spiders for as long as she could remember, had never been able to accompany friends on country excursions, including camping, and was unable to visit a country cottage that had recently become available to her. She was constantly preoccupied that spiders might appear at home.

*Case 6.*—A 40-year-old woman had been afraid of spiders since early childhood. She had sought treatment in the past, without success, and was now unable to open the windows lest a spider should enter, and she would panic and summon her husband (the only member of the household not afraid of spiders) from work if a spider appeared in the home. Hearing the word "spider" made her panic; her phobic anxiety was unusually intense.

*Case 7.*—This patient was the 19-year-old son of Case 6. He had also been afraid of spiders since early childhood, but was less severely disabled by the phobia than was his mother. He asked for treatment because he had had to give up his work as a yacht builder after striking a colleague who showed him a spider among some wood.

*Case 8.*—A 41-year-old housewife had been afraid of thunder since age 10. She asked for treatment after a severe thunderstorm in 1969 frightened her badly. She had become increasingly afraid of other sudden noises and unable to watch noisy television programmes.

*Case 9.*—A married woman of 41 who had been afraid of birds since the age of 3 sought help because her husband's cat had several times caught and killed a bird and brought it to the front door, so that she had become increasingly anxious about leaving the home. She wished to overcome the phobia rather than sell the cat. She was also unable to walk past one or more pigeons, or a dead bird, in the street, and could not tolerate birds fluttering near or flying towards her.

*Case 10.*—A 30-year-old housewife was referred for treatment of her long-standing feather phobia by her psychotherapist, who hoped that relief of her phobia would aid his treatment of her marital problems and tendency to depression. She had recurrent nightmares about black feathers, could tolerate no feathered objects in her home, and could not enjoy the country surrounding her home for fear she might encounter a feather.

### Method

Each patient was assessed in a psychiatric interview. It was suggested that the phobic problem was maintained by the understandable tendency to avoid or escape from anxiety stimulated by the phobic object and that the phobia could be overcome if avoidance was prevented. Patients understood this readily, but sometimes doubted whether they could tolerate the anxiety of contact with the phobic object. They were told that the anxiety would gradually subside if they remained long enough in the presence of the object.

Cases 5, 7, and 8 had received imaginal flooding in a previous trial. Cases 2, 3, 4, 9, and 10 asked for imaginal treatment to begin with, to accustom them to the idea of confronting the real feared object. These patients were told that the fantasy sessions were a preliminary to practice sessions. Cases 1 and 6 received treatment in practice only.

### FANTASY SESSIONS

Each fantasy session took the following form:

(1) Clinical and physiological assessment: patients and doctors rated phobias and other neurotic symptoms on scales modified from those described by Gelder and Marks (1966), and semantic differential scales were used to measure attitudes to a sample phobic situation and a neutral scene. Physiological measures were of heart rate and skin conductance, similar to those used in previous trials (Marks *et al.*, 1971).

(2) The patient listened to tape-recorded "flooding" themes. Four themes were used, each lasting six to seven minutes, and each was played four times so that the total "playing time" was about 2 hours. The usual order was theme 1, theme 2, 1, 2, 1, 2, 1, 2; theme 3, theme 4, 3, 4, 3, 4, 3, 4. One author rated the patient's perceived anxiety during the previous theme at the start of each story, using a linear scale (Aitken, 1969). The patient was attached to the polygraph throughout for continuous records of heart rate and skin conductance. Each story described the patient entering a phobic situation and suffering the disastrous consequences he had already described himself in the original clinical interview. Our tapes described the patient's situation and his physical and mental state, and omitted putatively relevant psychodynamic material.

(3) The clinical and physiological assessment described in No. 1 was repeated.

### PRACTICE SESSIONS

Practice sessions were also carried out with the patient attached to the polygraph, seated in a comfortable chair (except for one session with Case 4, during which she submerged herself in a bath). Patients were assessed clinically and physiologically before and after each session as above. The aim during the practice was to encourage the patient to approach the feared object as closely and as quickly as he could, and to remain in contact with it until his anxiety diminished. Avoidance, including averting the head or eyes and drawing the hand away, was discouraged. Attempts to deliberately provoke anxiety (Marks *et al.*, 1971) were gradually abandoned, for patients seemed to overcome their phobic avoidance more quickly if the therapists did not add to the anxiety induced by the feared object. In later patients the sessions were conducted in as free and pleasant a way as possible. For example, Case 2 received two two-hour sessions of flooding in fantasy. She then said she could face real cats. After the assessment she was told that a black cat would be brought into the room. The cat was held on a table about 6 ft. (1.8 m) away from her; looking at the cat provoked intense anxiety which subsided after about five minutes. Over the next five minutes the therapist gradually brought the cat nearer to her, and each change in the position of the cat produced a short-lived increase in anxiety, during which she

was reassured and encouraged to keep looking at the cat. After 15 minutes she was able to touch the cat, and as the session proceeded she became able to stroke the cat and hold it on her lap. She spent the last 15 minutes of the two-hour session cuddling the cat on her lap, without anxiety.

The practice sessions were designed to accommodate the peculiarities of the individual phobias. Some 90 balloons were blown up and burst around Case 1 during 45 minutes. Many feathers, including a child's Red Indian headdress, were used in Cases 3 and 10. Case 4 was encouraged to keep submerging her head in a bowl and later in a bath. Cases 5, 6, and 7 were exposed to an assortment of spiders, and Case 8 to records of thunder, wind, and rain. Case 9 was encouraged to handle a stuffed bird and then to approach, touch, handle, and play with a pet budgerigar, first in the cage and later outside it.

## Results

### CLINICAL IMPROVEMENT

A "clinical phobia score" was obtained for each patient. Each of four phobic situations was rated on a 9-point scale (0-8) by patient and doctor on both anxiety and avoidance scales, giving four scores for each situation. The clinical phobia score was the mean of all 16 scores, and could range from 0 to 8. Means of the clinical phobia scores of all the patients taken together were 7.3 before treatment, 5.7 after the fantasy sessions, and 2.4 after practice. The mean total reduction in clinical phobia score was therefore 4.9. Treatment in imagination was associated with a mean reduction in clinical phobia score of 1.6, and practice with a further reduction of 3.3.

Each patient was asked at the end of treatment and at subsequent follow-up interviews how many marks out of 10 he would now give himself, if 0 was how he was before treatment and 10 meant being entirely symptom-free. The mean most recent rating was 7.8. Patients received either two or three sessions, the average total treatment time being between four and five hours.

### PHYSIOLOGICAL CHANGES

As part of the assessment procedure carried out at the beginning and end of each treatment session the patient was asked to imagine a phobic situation and also a neutral scene. The instructions were identical at each assessment. The number of heart beats in the last 20 seconds of the relaxation period preceding the instructions to obtain a given fantasy was subtracted from the number of heart beats in each of the two consecutive 20-second periods after the patient's signal that he had a clear image. To eliminate the effect of visual imagery per se, the change during the neutral image was subtracted from that during the phobic image. This gives a "change in heart rate" score. A positive score means that the patient's heart rate quickened more between relaxing and imagining a phobic situation than between relaxing and imagining a neutral scene. The mean change in heart rate scores of all the patients was 20.7 beats per minute at the start of treatment and 7.2 beats per minute at the end of treatment.

### COMMENT

Three important points stand out: all patients were greatly

helped by the treatment; all patients improved more after practice than after imaginal sessions; and clinical improvement was maintained at follow-up, when patients showed little residual fear or avoidance of their phobic objects. The clinical changes were accompanied by physiological improvement; phobic imagery caused less increase in heart rate at the end of treatment than at the start. Skin-conductance activity was also less prominent during phobic imagery after treatment than before it. These results will be discussed in detail elsewhere.

## Discussion

This method produced better results in less time than other treatments so far reported for chronic phobic disorders. Follow-up so far is short (three to six months). Focal phobias in adult patients, however, rarely relapse once they are helped (Marks, 1969), which makes the outlook hopeful in these 10 patients. All were delighted with the outcome, and mentioned the advantage of rapid treatment requiring few attendances at hospital. This degree of improvement is sometimes obtained with desensitization but rarely in less than 15 sessions. The present method is also applicable when desensitization has failed. If our results are confirmed the method might become the treatment of choice for specific phobias.

How can procedures as different as desensitization, flooding, and exposure in practice all help phobic patients? A possible common factor concerns avoidance, which is overcome very gradually in desensitization, suddenly in implosion, and gently but firmly in the procedure we have described. If avoidance is as important as this, then anxiety may be of secondary importance in these patients. This formulation could lead to adjustments to our procedure which would make it more pleasant.

In our patients different aspects of the fearful behaviour diminished at varying rates. These aspects included the ability to imagine a formerly phobic scene without feeling anxious or having an increase in heart rate, to tolerate a formerly phobic object without avoidance, with or without anxiety, and to have a neutral attitude towards the phobic object.

These studies suggest more effective ways of helping agoraphobic patients, who constitute a greater psychiatric problem than those with specific phobias. Preliminary studies in which patients have been sent or taken into shops, buses, trains, and crowds for prolonged periods until their anxiety diminishes suggest that this approach is of value. Hardy (1969) treated agoraphobic subjects successfully by continuous exposure to phobic situations for up to eight hours at a time. Controlled study of this approach is now under way.

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