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Aversion Therapy of Homosexuality

A pilot study of 10 cases

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Until recently it was a widely held opinion that little could be done to alter the sexual orientation of homosexuals (Curran and Parr, 1957). Most therapists confined their efforts to helping the homosexual to adjust to his role. Now opinions are beginning to change. Bieber *et al.* (1962) with psychoanalysis and MacCulloch and Feldman (1967) with aversion therapy have reported a significant number of successes—where homosexual orientation has been lost and heterosexual orientation gained.

There is no shortage of patients who seek such a transformation and who suffer in one way or another from their homosexual role. It is becoming increasingly clear that in these patients the term homosexuality covers a range of clinical problems, some of which will be resistant to such therapeutic attempts, and some of which will respond satisfactorily. But as yet we are largely ignorant of the factors which decide such outcomes.

Aversion therapy of sexual disorders is a relatively new technique. So far very little careful experimentation has been done in this field, even though this treatment method lends itself to careful examination more readily than most.

Freund's study (1960), using chemical aversion, involves the largest number so far, 47 homosexuals being treated with a 25 per cent. improvement rate. This study is notable for its careful and longterm follow-up data, but lacks details of the treatment method and its direct effects.

Feldman and MacCulloch have provided considerable detail about their electrical aversion technique (1965) and adequate follow-up data. Their 57 per cent. improvement rate in 43 homosexuals represents the best results so far. However, they provide relatively little detail about the manner of change occurring in their patients.

Bancroft and Marks (1968) reported the results of electrical aversion in 40 cases of sexual deviation, with some attention to the types of effect produced. Marks and Gelder (1967) reported the first 5 transvestites and fetishists from this group in considerable detail. So far this has been the most comprehensive attempt to describe the nature of change which occurs in this treatment.

This present paper describes in detail the results in the first 10 homosexuals from the above group, the minimum follow-up period being one year.

The aversive method most used in this study has been a new one. Its newness depends on the measurement of penile erections by means of a penis transducer (Bancroft, Jones and Pullan, 1966). These measurements during the course of treatment have provided a great deal of objective data, which will be reported elsewhere. This paper will concentrate on the more clinical aspects of the treatment and its results.

Method

Two aversive methods have been used. One of these (Method A) has been used in every case and was the method under investigation. The other (Method B) was used as an additional method in the last three cases only. The reasons for doing so will be given below (see discussion).

In method A, the patient was asked to produce erotic homosexual fantasies whilst looking at photographs of males. Painful electric shocks were delivered to his arm whenever an erection developed up to a certain level. (In most cases the level used represented an increase in the circumference of the penis of approximately 0·6 mm. This reflects a change of which the subject is not usually aware but which is reliable and distinguishable from artifact.) Following this initial shock, further shocks were given at 15 second intervals unless the erectile response was falling or was once again below the threshold level.

A maximum of 5 shocks was given in any one trial.

If the threshold level of erection was not reached by the end of 5 minutes, the trial was ended and a new trial was started with different photographs. On the average, 12 such trials were given in each session.

In addition each session included two further types of trial; one homosexual trial with no threat of shock, and 3 heterosexual trials when photographs of females were used and the patient encouraged to produce heterosexual fantasies. These heterosexual trials were included for two reasons. Firstly to allow discrimination between homosexual and heterosexual erections and so avoid any suppression of homosexual erections generalizing to both. Secondly it was hoped that either by a practice effect or by an "anxiety-relief" effect (due to withdrawal of the threat of shock) the heterosexual responses might be reinforced.

In the last three patients an alternative method was used in the last part of treatment (Method B). In this method, the patient was asked to produce specific homosexual fantasies without the use of photographs, and to signal as soon as he had the image clearly in his mind. He was then shocked (McGuire and Vallance, 1964; Marks and Gelder, 1967). In this second method, therefore the noxious stimulus was not contingent upon the erectile response but upon the fantasy.

The shock was delivered from a battery operated apparatus (for details see Marks and Gelder, 1967). The strength of shock was adjusted for each patient. He was asked to state what level was most unpleasant without being unbearable. Sometimes, due to tolerance developing, this level was increased during treatment.

At the start of each session the patient was asked to comment on how he had been since the last session, with particular reference to his sexual feelings and behaviour, and mood. Apart from these routine questions conversation was kept to a minimum.

Between 30 and 40 aversive treatment sessions were given to each patient. Each session lasted from 1 to 1½ hours. Patients D, H and J were treated as inpatients, having one or two sessions daily. The remainder were treated as outpatients having two or three sessions per week.

Following the course of aversive treatment, a variable amount of treatment time was spent, depending on the individual's requirements. This time was used mainly for supportive and directive psychotherapy, but other behavioural techniques have been used to some extent (e.g. desensitization of anxiety (Wolpe, 1958)). Details of any additional treatment will be given with each case.

Selection of patients. Any patient was included who wanted treatment for homosexuality and who was prepared to accept this treatment when it had been explained to him. No patient referred for treatment was refused treatment, but six patients decided against it. In each case the patient was told that the treatment was part of a research project and that no indication of the likelihood of success could be given. Four of the patients treated were actively seeking aversion therapy, having read about it in the lay press.

Results

To present the clinical results of such a study in a concise but meaningful way is not straightforward. The initial problems of the patients and hence the aims of treatment will be seen to have varied considerably. The use of a general measure of improvement (e.g. worse, unchanged, slightly improved, much improved) conveys little information to the reader. Some workers (MacCulloch and Feldman, 1967) have used changes in the Kinsey rating (Kinsey *et al.*, 1948). The shortcomings of the Kinsey rating in this context are fairly clear. Firstly, a single rating should only apply to one defined period in time; a man who was "Kinsey 6" when treatment started may have been "Kinsey 0" earlier in his life and therefore presents a different problem to a man who has been "Kinsey 6" all his life.

The Kinsey rating is also too crude for our purpose. It merely indicates relative dominance of heterosexuality or homosexuality without in any way quantifying either.

To overcome these difficulties in this paper the degree of sexual behaviour before and after treatment has been assessed by a point scoring system. Two scales (see Table I) one for heterosexuality, one for homosexuality, have been used.

Each scale contains 5 categories, each covering one aspect of sexual behaviour. The categories used and the relative weightings given to them have been based on the clinical judgement of the writer. These scores therefore, should be considered as no more than a convenient way of presenting clinical information. Studies are in progress to assess the validity and reliability of these scales in the hope that they may be of wider application. The most representative score from each of the first four categories is added to provide the total score. The fifth category contains negative items which are subtracted from the total score. The maximum score in each scale is 10.

TABLE I

Heterosexuality

Fantasies (with or without masturbation)		
occasional fantasies but less important or frequent than other types of fantasy		+1
or		
A. Not the exclusive type of fantasy but no obvious difference in importance or frequency from other types of fantasy		+2
or		
The most frequent or most important type of fantasy		+3
B. Finds some females that he sees sexually attractive	max.	+1
Relationships with females whom he finds sexually interesting		
C. Takes them out for dates (or finds wife sexually interesting)	max.	1
Kissing and caressing but no genital contact		+1
or		
D. Genital contact, but no sexual intercourse		+3
or		
Sexual intercourse, but less frequent than other forms of orgasm as sexual outlet		+4
or		
Sexual intercourse, as most frequent and satisfying form of sexual outlet and orgasm		+5
Anxiety occasionally leading to impotence		−½
or		
Anxiety usually leading to impotence or avoidance of intercourse or no interest in initiating intercourse		−1
Reliance on deviant fantasies during intercourse	less than 50%	−½
	more than 50%	−1

Homosexuality

Fantasy (with or without masturbation)		+1
as for heterosexuality		+2
		+3
Finds some males that he sees sexually attractive	max.	+1
Relationships with males he finds sexually attractive		
Keeps company with them because he finds them sexually attractive		+1
or		
Visits places where homosexual contacts may be made, for that purpose		+1
Occasional physical contact with males producing sexual arousal but no orgasm in either person		+1
or		
Sexual contact with male leading to orgasm in subject and/or partner:		
Less than once a month		+2
More than once a month but less frequent than heterosexual genital contact		+3
More than once a month and more frequent than heterosexual genital contact or more than once a week, but less frequent than heterosexual genital contact		+4
More than once a week, and the most frequent type of genital contact		+5
Experiences anxiety or revulsion during homosexual acts but does not prevent orgasm		−½
Anxiety makes him impotent or avoid genital contact, or orgasm		−1
or		
Experiences no sexual arousal during homosexual act		−1

Thus a representative score for any particular period in time can be allotted. As it is important to know the level of heterosexual and homosexual behaviour in the past, three arbitrary pre-treatment time intervals have been used. Firstly the two year period preceding treatment, secondly the five year period preceding the first period and thirdly the period from the beginning of the five year period back to puberty. This third period will of course vary according to the age of the patient, but it can be taken very approximately to represent the adolescent and early adult phase. Scores for such long intervals are obviously difficult to assess, but with the special purpose of this score in mind, the $\frac{1}{2}$ to 1 year interval with the maximum score has been taken as representative of that period.

Post treatment scores are given for the end of treatment and for each six month period during follow-up.

Figure 1 shows the mean scores for the group presented graphically. Table II gives the scores for each patient separately. These scores have been used to quantify the effects of treatment in the following way. The scores at the end of treatment have been compared with the two years pre-treatment scores to give a combined heterosexual and homosexual "change" score.

In addition, the same comparison has been made between the 2-year pre-treatment period and the *last* 6 months follow-up period. This score has been called the "Improvement" score (Table III).

Using the scores in this way permits a quantification of improvement and enables correlations between improvement and other variables to be computed.

A brief historical description of each patient will be followed by a short account of his response during treatment and progress during the follow-up period. In this way it is hoped to provide the reader with a clinical picture of the types of outcome.

Patient A

History. A 36 year old artist of good personality. He had a weak father who died when he was eight, and a dominating mother with whom he had had an ambivalent and not very close relationship. Apart from a few sporadic

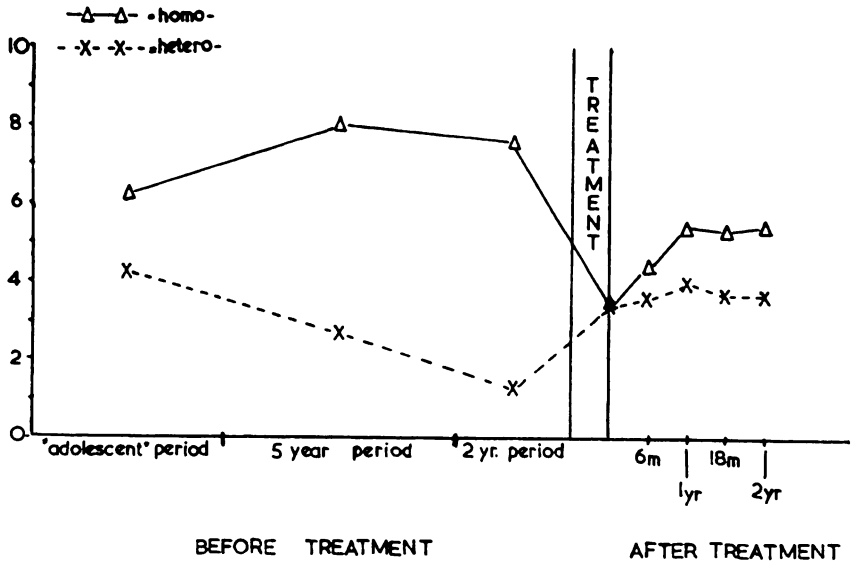

FIG. 1.—Ratings of Homosexuality and Heterosexuality in 10 Homosexuals. Mean representative scores for 3 pre-treatment periods and for each six months post-treatment period.

TABLE II

		Before treatment				Follow-up period			
		"Adolescent"	5 year	2 year	End of treatment	1st 6 mths.	2nd 6 mths.	3rd 6 mths.	4th 6 mths.
A	Homo	3	8	8	5	6½	7	7	7
	Hetero	9	8	8	8	8	8	8	8
B	Homo	10	10	10	3	3	9	10	10
	Hetero	0	0	0	2	2	0	0	0
C	Homo	8	10	9	0	0	0	0	2
	Hetero	6	0	0	4	4	4	5	2
D	Homo	—	5	4	5	8	8	6	6
	Hetero	—	0	0	0	0	0	0	0
E	Homo	4	9	5	0	0	0	4	2
	Hetero	10	8	5	6	6	7	1	8
F	Homo	9	9	9	2	4	4	4	—
	Hetero	3	0	0	4	3½	4½	2½	—
G	Homo	9	9	9	6	6	1½	1½	—
	Hetero	2	2	0	3	3	10	10	—
H	Homo	5	6	6	1½	1½	9	—	—
	Hetero	4	2	2	4	6	1½	—	—
I	Homo	3	9	10	8	10	10	—	—
	Hetero	5	7	3	1	1	1	—	—
J	Homo	5	5	5	3	5	5	—	—
	Hetero	0	0	0	0	1½	3½	—	—

TABLE III

"Normal" Personality				"Abnormal" Personality			
Patient	Age	Change score	Improvement score	Patient	Age	Change score	Improvement score
A	36	+3	+1	D	22	−1	−2
B	28	+9	0	F	47	+11	+3½
C	37	+13	+9	G	27	+6	+17½
E	36	+6	+6	H	24	+6½	−3½
I	29	0	−2	J	27	+2	+3½
Means	33·2	6·2	2·8	Means	29·4	4·9	3·8

Correlation between improvement score and age = +·22

homosexual incidents from the age of 16, he was clearly heterosexual in his outlook. He married when he was 26. Homosexual urges first became prominent 4 to 5 years after this. Since then he has continued an active and satisfactory sexual relationship with his wife and has also had frequent "casual" homosexual contacts. He wanted treatment to stop the homosexual urges which threatened his social and married happiness.

Previous treatment. A few psychiatric interviews only.

Course of treatment. After 12 sessions his homosexual interest was beginning to fluctuate. After 20 sessions the urges were definitely weaker. After 30 sessions he was initiating homosexual encounters but finding himself impotent. This had never happened before. Treatment was stopped after 45 sessions when he felt he could control the urges.

Follow-up. For 4 months homosexual incidents were much less frequent, and devoid of orgasm. But gradually he returned to his previous pattern. He was given a further course of treatment using method B; this gave him greater control but only whilst the treatment was continuing.

Three and a half years after treatment homosexual

encounters continue but the frequency is less than before treatment, the urges are less strong, and he is getting less pleasure from them. He is not so worried by his homosexuality which now seems less important to him.

Patient B

History. A 28 year old Post Office worker whose parents were both deaf from childhood. He had a better relationship with his mother than with his father. He has a passive unassertive personality, lacks drive but gets on with people who lead him. His sexual interests have always been exclusively homosexual and he has had many homosexual partners. He came for treatment because he was frightened by a police charge.

Previous treatment. Nil.

Course of treatment. After 12 sessions he started to show slight erections to heterosexual fantasies. After 21 sessions these became strong and he was starting to masturbate with heterosexual fantasies, but he expressed the following difficulty which was never completely overcome ... "when ever I start to think of the vagina a penis comes into my mind—as though there was some kind of block".

Treatment stopped after 39 sessions. Although he had started to find women attractive and to masturbate with heterosexual fantasies for the first time in his life, his homosexual interest had never been significantly reduced and had remained prepotent.

Follow-up. For 3 months he was less preoccupied with homosexual thoughts. He continued to masturbate with heterosexual fantasies without difficulty but without great enjoyment. He felt little attraction to the women that he saw. After four months homosexual urges became stronger and heterosexual fantasies difficult. After 6 months he resumed homosexual activities. Soon he was back to his normal pattern and had decided to accept his homosexuality.

Patient C

History. A 37 year old, highly intelligent zoologist who lost his father when he was 9, and had an intense relationship with his mother till her death when he was 13. He is of sound personality, conscientious, somewhat anxious but not obsessional or neurotic. His first sexual experiences were homosexual. Though having some heterosexual experience when younger, he was frightened of sexual intercourse (fear of impotence) and from the age of 24 he made no further attempts at heterosexual relationships. He then became exclusively and promiscuously homosexual.

He came for treatment because he could no longer accept the homosexual role. He wanted to become heterosexual.

Previous treatment. Nothing significant.

Course of treatment. After 10 sessions he reported a feeling of tension as soon as homosexual erection started. After 12 sessions he was experiencing "pangs" of anxiety on seeing attractive males in the street. By this stage he was beginning to masturbate with heterosexual fantasies. After 15 sessions he started to feel some anxiety during the female trials and a little later was noting "pangs" of anxiety on seeing sexually threatening females as well as attractive males. This conditioned anxiety became more obvious and treatment was stopped after 35 sessions. At this stage he was having no homosexual urges and was masturbating satisfactorily to heterosexual fantasies.

Follow-up. For 2½ years he has maintained this conditioned "phobic" anxiety to potentially attractive males, experiencing a "pang" of discomfort in the chest when seeing them. On two or three occasions homosexual advances have been made to him and these have provoked intense anxiety and avoidance.

His heterosexual "phobic" anxiety was treated with 10 desensitization sessions during the first three months of the follow-up period with some improvement.

His relationship with one heterosexual male friend went through interesting changes. Prior to treatment, this man had been extremely sexually attractive to the patient. Following treatment there was no sexual attraction but he felt strong and unpleasant emotional reactions, mainly of envy and depression, to this man's heterosexual relationships, culminating in a suicidal attempt after his friend's engagement was announced. The envy was of the male friend rather than the girl involved. He is now accepting his friend's marriage more reasonably.

After eighteen months he started his first serious heterosexual relationship. This continued for nearly six months. He found her attractive sexually and enjoyed kissing and caressing her but he had a constant fear of impotence which prevented him from attempting genital contact. The relationship finally broke up and following this he became depressed again and there was some increase of homosexual thoughts during masturbation. Two and a half years after treatment his homosexual interest is much reduced and he has no desire to make any homosexual contacts. He is once again using homosexual fantasies during masturbation but heterosexual fantasies occur some of the time. He continues to show some sexual interest in females that he sees.

Patient D

History. A 22 year old man with no settled employment, with an abnormal personality, an ineffectual father and a dominating mother. He also suffered from epilepsy. He believed he had an abnormally small penis, and his sexual behaviour was confined to frequent masturbation. His fantasies involved muscular men having intercourse with women but his interest was focused on the men. He had no sexual interest in females. He was intensely anxious about his sexual problems before treatment.

Previous treatment. Some short lived attempts with psychotherapy and hypnosis without effect.

Course of treatment. He showed inconsistent and varied responses during treatment and was an unreliable witness. There was slight improvement in the first half of treatment but the second half resulted in a hostile, negativistic and destructive attitude together with some depression of mood. He made a suicidal gesture and his first ever homosexual advance during this stage. Treatment was stopped after 36 sessions with no apparent benefit having been achieved.

Follow-up. He appeared much more accepting of his homosexuality after treatment. Two months later he was seduced into mutual masturbation (his first overt homosexual act). He found little pleasure and was unable to reach orgasm. Nine months after treatment he was playing a passive role in buggery, but with no sexual arousal on his part. Two years after treatment he was much more settled and was having an affair with an elderly man in which sexual activity was getting less and less frequent. He still failed to achieve orgasm during these encounters, but had continued to masturbate with his pretreatment voyeuristic fantasies.

Patient E

History. A 36 year old actor of athletic build who had a weak father and a highly neurotic mother with whom he had had an extremely ambivalent relationship. Apart from a small amount of schoolboy homosexuality, his experiences were heterosexual until his mid-twenties, though always confined to prostitutes. Then he met his future wife, started a satisfactory sexual relationship with her and at about the same time became actively homosexual. After several years gap he re-met and married his present wife, but since then had been almost impotent. Attempts at intercourse made him anxious and revolted. Homosexual activity had ceased in the previous two years but intrusive homosexual fantasies were still strong and frequent. For the previous year he had been suffering from marked pervasive anxiety.

Previous treatment. He had had intensive and prolonged psychoanalysis without any improvement in the sexual problem.

Course of treatment. After 12 sessions he was having intercourse with slight enjoyment and much less anxiety.

After 20 sessions both homosexual and heterosexual responses and interest increased, with the latter predominating. As treatment continued his general anxiety increased and when treatment was stopped after 32 sessions both heterosexual and homosexual responses were declining again. At this stage, homosexual fantasies provoked disinterest rather than anxiety, whereas heterosexual fantasies, especially involving his wife, provoked some anxiety.

Follow-up. His high level of anxiety gradually declined following treatment. His anxiety towards his wife was treated with desensitization but with no effect. It became increasingly clear that much of his anxiety was related to aggression towards her which he was unable to express. He and his wife were therefore seen jointly and he was encouraged to express his aggression in a controlled way. Their relationship improved following this, though sexually there was no further improvement. He had intercourse once or twice a month with slight pleasure and very little anxiety, but it was usually at his wife's instigation and he had no sexual interest at other times.

Ten months after treatment, his relationship with his wife deteriorated again, his anxiety increased and he became completely impotent. One month later homosexual fantasies returned. He expressed anger at the treatment and the therapist and discontinued attendance. Shortly after this he started psychotherapy with a female lay analyst. After a further 5 months, homosexual fantasies disappeared again and his heterosexual interest increased. He had intercourse with his wife with more pleasure than he had felt for several years. This increase then waned again and when last seen, 2 years after treatment, the situation was much as it had been in the first 10 months after treatment.

Patient F

History. A 47 year old Scot, with an unassertive dependent personality. He had an unhappy childhood, a hostile relationship with his father who derided him, and an ambivalent relationship with his mother. He had been markedly phobic of heterosexuality and female genitalia since his early teens and he had led a regular though casual homosexual existence since he was 26, taking the active role in anal intercourse.

Previous treatment. For many years he had sought treatment to become heterosexual. He had had prolonged psychotherapy, psychotherapy with LSD and two previous, though completely unsuccessful, attempts at electrical aversion therapy.

Course of treatment. He reported relief at the start of female trials after only 2 sessions. After 8 sessions he started to produce strong erections to heterosexual fantasies. From then on the pattern was of fluctuating heterosexual interest. Homosexual interest and responses were reduced early in treatment, but showed a slight increase in the second half. Treatment was stopped after 35 sessions. At this stage he felt "really heterosexual now" and had only occasional slight homosexual interest.

Follow-up. He continued to masturbate satisfactorily with heterosexual fantasies and to have no more than fleeting homosexual thoughts. He considered himself primarily heterosexual. In addition he became more assertive.

Nine months after treatment he started a relationship with a woman he found attractive. He was very happy at this stage but she broke off the relationship before any significant physical contact had been made. This rejection was followed by a period of quite severe depression for 2 to 3 weeks. During this time his homosexual interest increased and he had two homosexual experiences. Fifteen months after treatment, following a second severe but short lived depressive episode he is showing more homosexual interest again, but retains some heterosexual interest and has certainly not regained his previous "heterophobia". He also remains significantly more self-confident and assertive than before treatment.

Patient G

History. A 27 year old clerical worker of superior intelligence, with an extremely anxious and defensive personality. He has perfectionistic tendencies which frequently render him indecisive and ineffectual.

He lost his father when he was 11 and there is a family predisposition to anxiety and introversion.

His homosexuality started when he was 13 following seduction by an adult. He has had no heterosexual

experience. He did feel some attraction to females when younger but has always been frightened of them.

Previous treatment. Nil.

Course of treatment. After 9 sessions he was finding heterosexual fantasies easier and after 12 sessions he was reporting an intense interest in women. Though fluctuating in intensity, heterosexual responses and interest continued for the rest of treatment. His homosexual interest and responses were slightly reduced during the middle stages of treatment but after 17 sessions they increased again. Treatment was stopped after 32 sessions, when his homosexual interest was much the same as before treatment, but he now found women strongly attractive.

Follow-up. Following treatment he became depressed, his homosexual urges became more marked and his heterosexual interest lessened. He remained depressed for the next five months. Then, following a minor rejection by a homosexual friend, he was admitted to hospital having been found wandering the streets at night removing some of his clothing. He showed no further evidence of psychotic behaviour. For the first month in hospital he remained isolated and mildly depressed. He was then started on diazepam and showed a marked change. He became more cheerful and confident and started a relationship with a female patient which continued after they both left hospital. At first he showed some degree of impotence, but he has had a satisfactory sexual relationship with her since. Fifteen months after aversion he enjoys regular sexual intercourse and has had no homosexual inclinations at all.

Patient H

History. A 24 year old teacher with a disturbed childhood. He had a distant relationship with his father and an insecure one with his mother who was chronically neurotic and had several mental hospital admissions.

He showed behaviour disturbances in childhood and has had a severely disturbed personality ever since, requiring frequent and prolonged spells of hospitalization. He suffered from marked anxiety and reactive depressions and was aggressively dependent.

Sexually he showed some initial heterosexual interest, but his main interest has always been homosexual. Apart from mutual masturbation at school he had had no overt homosexual experiences. His masturbation fantasies were of forcing a reluctant male into being masturbated by him.

He has had several girl friends but the threat of genital contact provoked anxiety. He found them only slightly arousing sexually.

Course of treatment. After 7 sessions he started to produce increasingly strong heterosexual responses associated with aggressive fantasies. After 15 sessions heterosexual images were beginning to intrude into his homosexual masturbation fantasies and a little later he masturbated with exclusively heterosexual fantasies for the first time. By this stage his homosexual interest was less strong and he had become unable to reach orgasm using homosexual fantasies. His homosexual responses in treatment continued as strong, however.

After 29 sessions, the treatment was changed to Method B. Following this change, the homosexual responses decreased and the heterosexual responses continued as before. Treatment was stopped after 39 sessions. At this stage he was finding women attractive and masturbating with heterosexual fantasies successfully on most occasions. He still found some males attractive but much less so.

Follow-up. He started a relationship with a girl, and physical proximity produced sexual arousal although nothing more than kissing occurred. He felt very unsure of himself in this relationship and in many ways he was testing and destructive towards it. After three months the relationship ended. At this time masturbation with heterosexual fantasies was becoming less satisfactory and he was noticing men. His interests fluctuated during the next three months. Six months after treatment, he made his first homosexual contact. One year after treatment he is energetically pursuing homosexual relationships but he avoids reaching orgasm himself, and if possible prevents his partner from doing so. When last seen he was feeling disillusioned with the homosexual world as he was failing to obtain any emotionally rewarding relationships.

Patient I

History. A 29 year old policeman, married with two children. He had a few homosexual encounters at school, but nothing further until five years ago. He married when 21. At first he obtained slight pleasure from sexual intercourse but this has steadily waned. Since becoming actively homosexual he has been mostly impotent with his wife (ejaculatio retarda). He has had one homosexual "affair" for the past three years and is not promiscuous. He was seeking treatment mainly for the sake of his wife and family.

Previous treatment. Nil.

Course of treatment. Little impression was made on either his homosexual or heterosexual responses. There was some reduction in homosexual urges after 5 sessions but he avoided using his "affair" in his homosexual fantasies and was clearly resisting any attempt to destroy his feelings for him. He reported little anxiety during treatment but he was generally non-communicative and difficult to assess. After 20 sessions the treatment was changed to Method B. He was urged to use fantasies involving his "affair". After only one further session it became clear that he did not really want the treatment to work. The treatment was therefore discontinued.

Follow-up. He returned to his previous homosexual relationship with considerable pleasure and continued a reasonably friendly though sexless relationship with his wife.

Patient J

History. A 27 year old man of average intelligence. He has had an unsatisfactory relationship with both parents. They have always derided his ability and have encouraged his dependence on them; his attitude to them is both mildly hostile and dependent.

He has an inadequate personality, anxious, self-

depreciatory and very unsure of himself in personal relationships. He has never had any heterosexual interests and has masturbated with homosexual fantasies since he was 16. He could never contemplate an overt homosexual relationship because of guilt.

Whilst on the waiting list for aversion he showed a marked behavioural change following the use of chlordiazopoxide, becoming much more self-confident and sociable than he had ever been before.

Previous treatment. Nil.

Course of treatment. He had 15 sessions of method A and 15 sessions of Method B. His responses were inconsistent. During Method A he was usually unable to concentrate on his fantasies for fear of the shock, even when very low levels were used. Occasionally, however, he responded easily. With Method B the same inconsistency occurred. At the end of treatment there was no evidence of change in his homosexuality, and the only change heterosexually was that he had lost his revulsion and was now able to sustain heterosexual fantasies more easily.

Follow-up. In the first three months he experienced more interest in females. He mixed more with them socially, and kissed a girl for the first time. This did not, however, result in any sexual arousal. His homosexual fantasies continued as strongly as before. Ten months after treatment there is no further progress. The main improvement has been a considerable increase in his self-confidence and socialization and a marked reduction in his anxiety about his sexual role.

Clinical Outcome

As a group these 10 patients showed a reduction, though not complete absence of homosexual interest and behaviour following treatment (Fig. 1.). This was associated with an increase in heterosexual interest. Both these changes have been maintained in the group, though some return of homosexuality has occurred. Homosexuality still predominates over heterosexuality, but the difference between them is much smaller than before treatment.

Individually, only three cases (G, C and E) have shown significant and lasting improvement, and in only one of these can the outcome be considered completely successful (Table III). Patient F showed significant improvement during the first year but this is not being sustained, although there is no evidence of his previous "heterophobia" returning.

Of the three cases who had *never* experienced any heterosexual interest before treatment none showed any marked or lasting improvement (B, D and J).

The Direct Effects of Treatment

The experimental use of noxious stimuli suggested two predicted effects from Method A. Firstly that the erectile response to deviant stimuli (i.e. fantasies and pictures) would be suppressed. Secondly that conditioned anxiety would become associated with the deviant stimuli or fantasies, leading to their avoidance or their extinction.

In most cases, suppression of erection occurred early in treatment but tended to return as treatment continued. In only one case (A) did this suppression continue and generalize outside treatment. In the latter stages of treatment he was experiencing erectile impotence during homosexual acts which he had never experienced before. The specificity of this effect was striking. During treatment only fantasies of the homosexual act had been used, fantasies of the preliminary stages had not been involved. The result was that he retained the desire to make homosexual contacts and would become sexually aroused with an erection whilst making such a contact, but as soon as the sexual act itself started he would lose his interest and his erection and break off the encounter. On several such occasions he was left with a feeling of frustration and after a while would make a further contact with similar results. This happened on more than 10 occasions during a period 5 to 6 weeks. The effect wore off when he discovered that he could maintain an erection and reach orgasm by persuading his homosexual partner to recite accounts of heterosexual orgies. At no time was his ability to enjoy intercourse with his wife in any way reduced.

Only one case (C) showed any evidence of conditioned anxiety to homosexual stimuli. Here a convincing phobia was produced which was certainly effective in maintaining avoidance of homosexual behaviour or fantasies. After 2 years the phobic element started to decrease, but is still present to some extent.

In the other cases who have shown reduction of homosexual interest (B, E, F, G and H) the effect has been one of diminishing interest only. In patient F it was narrowed down to a passing interest in the sight of men's genitalia showing through their tightly fitting trousers; otherwise

he took no notice of men. Patient E was able to think of homosexual fantasies with complete lack of interest.

The increase in heterosexual interest has usually developed initially as increased ability to sustain heterosexual fantasies during treatment. Later this would spread to masturbation where heterosexual fantasies would become more prominent and homosexual ones less and less intrusive. The tendency to find women attractive came still later. Patients F and H developed a strong response to particular photographs of women whilst not having the same degree of attraction to "real" females.

The first seven patients (A to G) were treated with method A alone. In this group 5 patients (B, D, E, F and G) showed suppression of homosexual erections in the early or middle stages followed by a re-emergence of these responses in the latter stages. In patients B, E and F this re-emergence was associated with an increase in heterosexual responses. It was thought possible that this heterosexual increase may have depended on the presence or return of the homosexual responses. In the last 3 cases, it was decided to use method A in the first half of treatment and then use method B in an attempt to suppress the homosexual responses whilst leaving the heterosexual ones intact. Only in patient H has this combined method been adequately tested, and in this case it produced the predicted results. Method A produced strong homosexual and heterosexual responses; method B reduced the homosexual responses whilst the heterosexual ones continued. In patient I treatment was stopped soon after starting method B, and in patient J his responses were too inconsistent to allow assessment. The possible implications of the above findings will be discussed in more detail in another paper.

Emotional Reactions to Treatment

Three types of emotional reactions will be considered; anxiety, aggression, and mood changes.

Anxiety. Two patients (A and D) reported no anxiety during treatment, and both appeared calm, though reporting the shock to be painful. This calmness was particularly striking in D who had been intensely anxious before treatment started.

Two patients (C and E) showed particularly high anxiety during treatment. In patient C, the anxiety was of phobic type, specifically related to sexual stimuli and the treatment situation.

In patient E, who had high anxiety (pervasive) before treatment, pervasive anxiety increased during treatment after an initial decline. But this was not specific to the sexual stimuli; in fact there was no evidence of conditioned anxiety to homosexual stimuli at all.

Patients B, F, G and H showed moderate or high anxiety in the first part of treatment. This then settled as they became used to the shocks, but increased again in the second half of treatment.

Aggression. There was little aggression expressed in this group. Patients A, B, C, I and J showed no evidence of aggression towards the therapist or to anyone else. Patient D was unco-operative and deceitful in the second half of treatment (when depressed). Patients F and G expressed some slight aggression towards the therapist on 3 or 4 occasions. Patients E and H showed the most aggression. Both these men were usually aggressive people, H neurotically so. In E it caused no problem except in relation to his wife (see below).

Mood changes

Two patients (F and G) showed marked variation of mood *during treatment.* In each case the pattern was of increased heterosexual interest associated with elated mood followed by a depressive phase and increased homosexual interest. In both cases, this pattern was repeated several times during treatment and in patient F continued for several weeks after treatment ended.

Patient D, having felt cheerful and optimistic in the first half of treatment became depressed in the second half. This depression was associated with a negative attitude to treatment.

Patients B, C and I showed mild depressive mood changes during treatment which followed no obvious pattern. Patient H's mood continued to vary as before treatment. In patients A, E and J there were no significant mood changes during treatment.

During the follow-up period depressive mood changes were more marked. Patient G became depressed soon after treatment and remained so, in spite of antidepressant drugs. until admission to hospital 5 months later. Whilst showing some improvement following admission, the most marked improvement followed the use of Diazepam.

Patient C was moderately depressed when he presented for treatment and has had several episodes of depression following treatment. The most severe was an acute reaction to his heterosexual male friend's engagement. This resulted in a serious suicidal attempt following which his mood improved. He again became depressed when his own heterosexual relationship broke up. This depression responded well to Imipramine, and his mood has remained satisfactory since.

Patient F has had two severe though short-lived depressive reactions since treatment. The first occurred after his rejection by a woman.

Patients A, B and H have shown some depression during follow-up. In patient B this continued until he relapsed to his previous homosexual pattern, when his mood improved. Patients E and I have had no significant depression since treatment, and patients D and J have been more cheerful than before treatment.

Thus, of the emotional reactions to treatment, depression has been the most significant and the most serious. Three patients (C, F and G) became sufficiently depressed to warrant antidepressant therapy, though in each case this has occurred in the follow-up period.

Changes in Other Aspects of Behaviour

Marital relationships

Three patients were married at the time of treatment (A, E and I). Patient A's marriage has been happier and more settled since treatment. His wife thinks that he is a more contented husband and father. Patient E's marriage became slightly more disturbed following treatment. Anxiety which previously had been more obviously related to the sexual relationship, now became more obviously associated with aggressive feelings towards his wife in non-sexual situations. This required marital counselling which was followed by improvement but did not prevent a later relapse.

Patient I's marriage has not altered except that he is now more resigned to homosexuality and his wife more accepting of it.

General behaviour

Patients A, D, F, G and J are definitely more content than they were before treatment. A is much less disturbed by his homosexual behaviour, D is much less anxious and more settled than he has ever been before (especially in his work record). F is more self-confident; he can now use his excellent singing voice in public which he has never been able to do before. G is more self-confident and is finding it easier to make personal relationships. J has also shown striking improvements in both self-confidence and personal relationships (these changes had started shortly before aversion therapy, following the use of chlordiazopoxide, but have continued without the drug).

The remainder have shown no significant change in this area and none can be said to be worse in his general well-being following treatment.

Discussion

Clinical outcome

The long term therapeutic results in this small series have certainly been modest, although striking short-term changes in sexual attitudes and behaviour have been achieved. The pattern of change for the group as a whole, shown in Figure 1, summarizes well the type of effect that can result. A reduction in heterosexuality has occurred from the "adolescent" phase to the period before treatment and the effect of treatment has been to restore heterosexual interest to its earliest highest level. Similarly, the difference between the homosexuality and heterosexuality following treatment is much the same as that in the "adolescent" period. In many ways, the same type of problem arises *following* treatment as was present during the adolescent period, and the final success of treatment will depend on whether these problems can now be overcome (i.e. lack of confidence, anxiety about heterosexuality, fear of sexual inadequacy,

etc.). In other words, the treatment has helped to provide a fresh start and has narrowed the gap which resulted from earlier failures at making heterosexual adjustments.

But with an inherently unpleasant treatment such as aversion, do such results justify its use? Obviously, for this question to be properly answered control studies are needed. Such a study, comparing an aversive method similar to the present one, with a non-aversive method is at present in progress. In the meantime, however, although general clinical application is not yet justified, further research into such methods is.

The main method described here is a new and relatively arbitrary one, and its effects are far from understood. The achievement of even modest results such as these is therefore grounds for optimism providing that careful research is continued into ways of understanding and improving the methods used. Also, although unpleasant, the treatment has been tolerated well, and in no case can the patient be said to be worse off as a result of it. Even in the two cases who became overtly homosexual for the first time after treatment (D and H), one has been very obviously more content since treatment. Of the remainder, only two (B and I) have failed to benefit in some way.

The directly unpleasant effects of treatment have not presented much problem, although clearly care is needed whilst treating patients already depressed or suffering from generalized anxiety. The most severe depressive reactions have occurred more as reactions to the changes following treatment than to the treatment itself, and as such are probably to be expected equally with other methods.

Further justification for continued effort comes from the results achieved by MacCulloch and Feldman (1967). These workers reported a 57 per cent. success rate in 43 homosexuals treated by electrical aversion. Although direct comparison with their results is not possible, there is little doubt that their results are superior to those reported here. Two important variables must be considered when attempting to explain discrepancies in results such as these; firstly, the sample treated, and secondly, the technique used. Each of these variables warrants further discussion.

Selection of patients

MacCulloch and Feldman have stressed two important factors in assessing suitability for their method; age and personality. Not surprisingly they found youth to carry a better prognosis. In their patients under 30, 70 per cent. showed improvement, whereas in the over-30's, 45 per cent. showed improvement. In the present series the same correlation between age and outcome does not occur (see Table III).

MacCulloch and Feldman classified the personalities of their patients according to Schneider, into "normal", "self-insecure" and "others" (mainly "weak willed" and "attention seeking"). All but one of their successes were of "normal" or "self-insecure" type. This classification of personality disorders is not acceptable to the present writer, but some slight comparison can be made by dividing the present series into those who have "normal" personalities and those who have significantly "abnormal" personalities (i.e. personality problems, besides the sexual orientation, which would be considered worthy of psychiatric help) (see Table III). The numbers are too small for proper analysis, but there is certainly no obvious trend towards better results in the normal group.

Thus there may be an important difference in composition of the two series. Possibly a higher proportion of young patients with normal personalities would have improved the results.

Method of treatment

Up to now writers in this field have stressed the importance of modern learning theory principles (i.e. S-R learning theory) in understanding aversion therapy (Franks, 1958; Eysenck, 1960; Feldman, 1966). In fact, it has been often stated that the poor results of some workers have been a consequence of their failure to apply these principles, whereas with the better results achieved the reverse has applied. However, a careful examination of the literature of aversion therapy in both alcoholism and sexual disorders failed to show any clear relationship between therapeutic outcome and the degree of correct application of learning theory principles (Bancroft, 1966). It is therefore

necessary to get the relative importance of the precise technique into a proper perspective.

The essence of MacCulloch and Feldman's method is that the patient learns to avoid electric shock by switching off a slide of an attractive male within a certain period of time. These workers have emphasized their view that their superior results have depended on the use of this avoidance learning paradigm. In animals, a learnt avoidance response is usually a very stable and persistent one. But they have paid little attention to the substantial difficulties in extrapolating from animal to man, especially in the case of avoidance learning. It has been shown experimentally that stable avoidance responses can occur in man, but if the subject is informed that no more shocks are to follow, the avoidance response ceases at once (Turner and Solomon, 1962; Graham *et al.*, 1964). MacCulloch and Feldman have therefore failed to explain how the acquisition of this "switching off" avoidance response has affected the sexual behaviour *outside* treatment.

In the present series, there has been little evidence of learned responses which could account for the behavioural changes that have occurred. And yet there has always been close contingency between the erectile response and the shock. In one case (Patient A) a convincing and specific suppression of erections occurred but this had little impact on the clinical outcome. In another (patient C) a convincing conditioned anxiety or phobia to homosexual stimuli developed and this has certainly been effective in altering long term behaviour. But such an effect appears to be rare in aversion therapy (Bancroft and Marks, 1968). In the remaining cases evidence of conditioning has been either absent, transient or merged into more complex attitude and emotional changes.

In the writer's opinion, attempts to understand the effects of this treatment in terms of conditioning and learning are bound to be of limited value. Much more is to be gained if the treatment is seen as a method of changing attitudes. The direct effects of treatment mainly involve conditioned anxiety and suppression or facilitation of erections. These effects may be best understood in conditioning terms, but they are usually short-lived. It is the effects that these transient changes have on the patients' attitudes that seem to be more relevant to the long term behavioural effects. When the changes in attitude become translated into changes in behaviour then they become more stable. (Most of the relapses in this series can be seen as reversal of attitude change following failure to translate it into behavioural change.) The same may be said of the other emotional reactions to treatment, such as depression or anger. Affective changes such as these, when they occur, are usually associated with attitude change although the nature of this relationship is far from clear. This is certainly an area in which further research is needed and it would be a mistake to view the affective changes merely as side effects of an unpleasant treatment, they are probably an integral part of the process. A great deal of experimental work in attitude change has been carried out by social psychologists, and much of this would seem as relevant to the present issue as the experimental work on conditioning and learning. But discussion of the implications of their findings would be out of place here (Hovland *et al.*, 1953; Festinger, 1957; Hovland and Rosenberg, 1960; Brehm, 1962).

If this viewpoint is accepted, then one explanation for the superiority of MacCulloch and Feldman's results does suggest itself. In the present study the use of a low, often subliminal level of erection as the response-to-be-punished has frequently resulted in variable and paradoxical effects (Bancroft, 1969). Such conflicting or confusing results could well have an adverse effect on the process of attitude change. A clear unequivocal type of response is perhaps more likely to be effective. MacCulloch and Feldman's method may be superior in this respect.

One further point about aversion therapy needs to be made. It should be seen as one part of the therapist's armamentarium and its combination with other available methods of "attitude change" needs to be understood. In the present series the need for additional treatment has been quite clear. In the most successful patient (G), the attitude change provoked by aversion was only followed by significant behavioural change after hospitalization and the use of drugs. In patient E additional psychotherapy was needed in the follow-up period, and patients

C and F have both needed a considerable amount of support and help following aversion.

Thus the role of the therapist-patient relationship should not be underestimated. Apart from the therapist's need to cope with the emotional reactions from both the patient and himself, the patient's feelings about the therapist may be of considerable importance. The patient will often seek interpretations of the changes and emotions which he is experiencing during treatment. The information which is given back to the patient in response to these questions, and the way the information is received, may considerably influence the attitude of the patient. In addition to the aversive treatment itself, the therapist will also need to give advice and reassurance as to the best way of approaching heterosexual relationships. How the patient values the therapist's opinion will therefore be of importance. This is particularly relevant in relation to aggressive feelings. It is to be expected that aversive methods will provoke anger in many cases, but it is far from clear whether such anger helps or hinders the therapeutic aim. It is possible that if aggression is aroused and not adequately expressed, it may lead to a devaluation of the therapist and the treatment, and thereby adversely influence the relevant attitude change. This is also an area in which further study is needed.

The number of therapists may be an important factor. Where more intensive aversion has been used in other sexual disorders (Bancroft and Marks, 1968) aggression has been more marked. More than one therapist have been involved in these cases and aggression has usually been directed at one therapist more than the others.

In conclusion, the aversive methods used have produced significant changes in sexual attitudes in 7 of the 10 cases, but in only 3 have these changes been long lasting. These results are therefore less satisfactory than those reported by MacCulloch and Feldman and further research is needed to explain the discrepancy in the two methods.

Methods of behaviour modification such as these are in their infancy and a considerable amount of further research is needed before such techniques can be advocated for general use. But the benefits to be gained from such research may be considerable. They will include increased understanding of behaviour modification in general, as well as a greater understanding of the behaviours to be modified.

Summary

1. This paper reports the attitude and behavioural changes and clinical outcome in 10 homosexuals treated with electrical aversion therapy. Two methods of aversion have been used, one in which electric shock was associated with erectile responses to deviant fantasies (used in all cases) and the other in which the shock has been associated with the deviant fantasy itself (used in 3 cases). Follow-up has ranged from three to one years.

2. Of the 10 patients, 7 showed significant changes in sexual attitudes following treatment, but in only three have these changes been sustained and in only one can the result be called completely successful.

3. The direct effects of treatment and the emotional reactions to it have been summarized. It is suggested that the changes produced cannot be adequately explained in S-R learning theory terms, and a more profitable approach is to consider the treatment as a method of changing attitudes comparable to methods investigated by social psychologists in a non-clinical setting. The stability of such attitude change will depend on its translation into behavioural change.

From this view point, it becomes clear that aversion is one technique of attitude change amongst many, rather than a specific treatment for a particular condition.

4. The justification for using an inherently unpleasant method of modifying attitudes requires confirmation from controlled comparative therapeutic trials. Such a trial is now in progress.

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References

BANCROFT, J. H. J. (1966). *Aversion Therapy*. Dissertation submitted for Academic Diploma in Psychological Medicine, University of London.

—— GWYNNE JONES, J., and PULLAN, B. R. (1966). "A simple device for measuring penile erection. Some comments on its use in the treatment of sexual disorders." *Behav. Res. Ther.*, **4**, 239–241.

—— and MARKS, I. (1968). "Electrical Aversion Therapy in Sexual Deviations." *Proc. Roy. Soc. Med.*, **61**, 796–9.

—— (1969). In preparation.

BIEBER, I. *et al.* (1962). *Homosexuality; A Psychoanalytic Study*. New York: Basic Books.

BREHM, J. W. (1962). *Motivational Effects of Cognitive Dissonance* (ed. E. Jones). Nebraska Symposium in Motivation. University of Nebraska Press.

CURRAN, D., and PARR, D. (1957). "Homosexuality: An analysis of 100 male cases seen in private practice." *Brit. med. J.*, *i*, 797–801.

EYSENCK, H. J. (1960). *Behaviour Therapy and the Neuroses*, p. 277. Oxford: Pergamon Press.

FELDMAN, M. P. (1966). "Aversion therapy for sexual deviations: a critical review." *Psychol. Bull.*, 65, 65–80.

—— and MACCULLOCH, M. J. (1965). "The application of anticipatory avoidance learning to the treatment of homosexuality. I. Theory, technique and preliminary results." *Behav. Res. Ther.*, **2**, 165–183.

FESTINGER, L. (1957). *A Theory of Cognitive Dissonance*. Stanford Univ. Press.

FRANKS, C. M. (1958). "Alcohol, alcoholism and conditioning; a review of the literature and some theoretical considerations." *J. ment. Sci.*, **104**, 14–33.

FREUND, K. (1960). In *Behaviour Therapy and the Neuroses* (ed. H. J. Eysenck). Oxford: Pergamon.

GRAHAM, L. A., COHEN, S. I., and SHMAVONIAN, B. M. (1964). "Physiological discrimination and behavioural relationships in human instrumental conditioning." *Psychosom. Med.*, **26**, 321–336.

HOVLAND, C. I., JANIS, I. L., and KELLEY, H. H. (1953). *Communication and Persuasion*. Yale University Press.

—— and ROSENBERG, M. J. (1960). *Attitude Organization and Change*. Yale University Press.

KINSEY, A. C., POMEROY, W. B., and MARTIN, C. E. (1948). *Sexual Behaviour in the Human Male*. Philadelphia: Saunders.

MACCULLOCH, M. J., and FELDMAN, M. P. (1967). "Aversion therapy in the management of 43 homosexuals." *Brit. med. J.*, **ii**, 594–597.

MCGUIRE, R. J., and VALLANCE, M. (1964). "Aversion therapy by electric shock: a simple technique." *Ibid.*, *i*, 151–153.

MARKS, I., and GELDER, M. G. (1967). "Transvestism and fetishism: clinical and psychological changes during faradic aversion." *Brit. J. Psychiat.*, **113**, 711–730.

TURNER, L. H., and SOLOMON, R. L. (1962). "Human traumatic avoidance learning." *Psychol. Monogr.*, **76**, 40 (whole no. 559).

WOLPE, J. (1958). *Psychotherapy by Reciprocal Inhibition*. Stanford University Press.

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