

CONTROLLED COMPARISON OF AVERSIVE THERAPY AND COVERT SENSITIZATION IN COMPULSIVE HOMOSEXUALITY

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Summary—Ethical objections to the use of behaviour therapy in homosexuality are discussed. It is pointed out that these objections were often based on a limited view of the aims of the therapy. The need for evaluating such therapy, as it is currently used, is elaborated.

Twenty subjects requesting behaviour therapy to reduce compulsive homosexual urges were randomly allocated, half to receive aversive therapy using electric shocks and half to receive covert sensitization. Both groups were studied for one year. There was no consistent trend for one therapy to be more effective than the other in reducing the strength of compulsive homosexual urges, and the response to both was similar to that reported in previous studies. It was considered that aversive therapies in homosexuality do not act by establishing a conditioned aversion, nor by altering the subjects' sexual orientation. They reduce aversive arousal produced by behaviour completion mechanisms when subjects attempt to refrain from homosexual behaviour in response to stimuli which have repeatedly provoked such behaviour in the past.

ETHICAL CONSIDERATIONS

Aversive therapy with the aim of reorienting subjects aware of homosexual feelings to heterosexuality was reintroduced by Freund (1960) following its earlier use by Max (1935). With the aim of increasing male subjects' heterosexual feelings, Freund added to the aversive procedure sessions in which the subjects were shown films of nude or semi-nude women seven hours after receiving testosterone propionate. Subsequently a number of uncontrolled studies (MacCulloch and Feldman, 1967; Solyom and Miller, 1965; Thorpe *et al.*, 1964; Thorpe *et al.*, 1963) were carried out using electric-shock aversive therapy in various conditioning paradigms with the aim of setting up aversions to homosexual stimuli. In these studies, subjects were also shown heterosexual stimuli in association with termination or absence of electric shocks in the expectation of increasing their heterosexual arousal.

Bancroft (1969) and McConaghy (1969) pointed out that aversive therapy did not result in aversion to homosexual stimuli. A series of studies were reported (McConaghy, 1970; McConaghy and Barr, 1973; McConaghy *et al.*, 1972) in which various forms of aversive therapy, with or without techniques to increase heterosexual arousal, were compared. All forms produced comparable effects. Before and following treatment the male subjects' sexual orientation was measured by penile volume plethysmography. Unlike penile circumference plethysmography (Bancroft, 1971; Mavissakalian *et al.*, 1975), penile volume plethysmography is a highly valid technique for measuring the sexual orientation of individual males (Freund, 1963; McConaghy, 1967). Following aversive therapies male homosexual subjects did not show meaningful change in sexual orientation, as measured by penile volume plethysmography (McConaghy, 1976). As compared to their response following placebo therapies, following aversive therapies they did show reduction in what they reported as compulsive or uncontrollable urges to carry out homosexual behaviours (Birk *et al.*, 1971; McConaghy, 1975). That is to say, aversive therapy did not reorient homosexuals, it allowed them to control aspects of behaviour they had previously experienced as beyond their control.

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An attempt to increase heterosexual arousability by a positive conditioning technique in which subjects were shown slides of nude women followed by those of nude men, was ineffective (McConaghy, 1975). Evidence that such techniques were likely to be ineffective was reported by McConaghy (1978). Married homosexual male subjects who had experienced regular and satisfying heterosexual arousal in intercourse with their wives did not show increased heterosexual orientation as measured by penile volume plethysmography when compared to single males with no history of experiencing heterosexual arousal. The value of training in social skills and dating behaviour to increase the heterosexual abilities of subjects with homosexual impulses has not been demonstrated in controlled studies. The senior author's clinical impression that it is of trivial effectiveness is supported by the findings of James (1978). Twenty male homosexuals received in addition to anticipatory avoidance, aversive therapy, social skills training, sex education and training in dating behaviour and interpretation of females' nonverbal communication. Their response to treatment was not as good in terms of reduction in homosexual outlets and ability to develop heterosexual relationships as was the response of subjects to anticipatory avoidance only in a previous study (James *et al.*, 1977). Of the 20 patients in James's study who received this training as well as anticipatory avoidance, two at most had experienced successful heterosexual intercourse at two-year follow-up.

While these studies evaluating the effect of aversive and other behavioural therapies in homosexuality were continuing, ethical objections began to be made to the use of such therapies. These were initially advanced in the context of broad criticisms of the treatment by psychiatrists and psychologists of various groups considered oppressed by members of liberation movements. These members disrupted academic meetings, making such demands as "The abolition of psychiatry as an oppressive tool... Communication with homosexuals on our own terms... A redefining of the psychiatric view of homosexuality... An investigation into barbaric practices of 'treatment'... Psychiatrists who promise 'cure' with lobotomies, castration and brainwashing techniques are sadistic, murderous quacks..." [Gay Liberation Demands to the APA Convention, circulated at a meeting of the annual congress of the American Psychiatric Association, San Francisco, 1970, during its disruption following the reading of a paper on aversive therapy of homosexuality (McConaghy, 1971)].

An initial response by some academics to these demands by members of liberation groups was not to object to aversive therapy on ethical but on methodological grounds. Money (1972) referred to these demands when he criticized a paper on the use of aversive therapy in homosexuality (McConaghy *et al.*, 1972) on the assumption that reward training would be more effective than punishment training. Money showed no awareness that therapies of this type had been attempted often in combination with aversive procedures. He showed no interest in the actual results reported with aversive therapy, which he dismissed as not encouraging. Wilson and Davison (1974) pointed out that militant homosexual objections to prevailing psychiatric and psychological thinking often singled out behaviour therapy, inevitably identified with aversive conditioning. Wilson and Davison also directed their criticism of behaviour therapy of homosexuality to methodological issues. Comparison studies which involved allocating homosexual subjects to different treatments were objected to as treating the subjects as a relatively homogenous population. Wilson and Davison ignored the fact that there was no empirical data demonstrating that subgroups of subjects would respond better to one procedure than another, and that treating subjects with a particular condition as homogenous and allocating them to different therapies in controlled studies had proved the most effective technique for evaluating therapies and discovering the existence of resistant subgroups when these exist. They criticized studies which combined aversive techniques with anxiety-relief procedures aimed at increasing heterosexual arousal as confounding the treatment effect, but approved of multifaceted behavioural approaches. They related the use of aversive therapy to a negative evaluation of homosexuality rather than the fact that it was the only therapy in homosexuality demonstrated to be effective in comparison with placebo therapy (Birk *et al.*, 1971). They recommended the use of

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such techniques as directed masturbation to produce sexual reorientation. No attention was paid throughout the article to the results reported with aversive therapy or positive conditioning approaches.

McConaghy (1977a) has pointed out that the literature on aversive therapy has been characterized by theoretical fixations which have prevented workers noting the actual responses of their patients. The insistence that aversive therapy acted by conditioning (Eysenck, 1960; Feldman and MacCulloch, 1964) resulted in this therapy being used for over 10 years before workers apparently noticed it did not result in conditioned aversions. A similar fixation seemed to account for the fact that though workers reported that aversive therapy produced only reduction or loss of compulsive urges to carry out homosexual behaviours (McConaghy, 1970; Birk *et al.*, 1971), its critics persisted in seeing it solely as a treatment for sexual reorientation. This is clearly not because they do not see patients who would benefit from a reduction in the strength of homosexual urges without necessarily being reoriented. In an extensive symposium on the ethics of behavioural intervention in homosexuality, Silverstein (1977) reported that he was approached for help by a clergyman who was homosexually inclined but hated himself and his desires. Silverstein stated that he refused to help this man or to refer him for help, on the grounds that the therapist should not attempt to assist the man change his sexual orientation. He appeared quite unaware that there was an alternative approach to attempting sexual reorientation in addition to trying to make the man more comfortable with his homosexuality. In my contribution to the symposium which Silverstein edited, I had stated:

"As a therapist who uses behaviour therapy for homosexuality, I do not believe it is possible to alter a homosexual orientation, but if an aspect of homosexuality has escaped from a person's control and he or she has what appears to me to be rational grounds for wishing to regain control of this aspect, I consider the use of behaviour therapy justifiable." (McConaghy, 1977b)

The same symposium contained a later version by Davison (1977) of "Homosexuality, the ethical challenge", based on his presidential address to the annual convention of the Association of Advancement of Behavior Therapy, Chicago, 1974. Davison also considered that behaviour therapy in homosexuality had only the aim of reorientating homosexuals. He accepted the argument rejected by others (McConaghy, 1974a) that treatment of homosexual subjects reinforces the social doctrine that homosexuality is bad and suggested that therapists stop using behaviour therapy, both aversion and positive approaches, including orgasmic reorientation, to reorient homosexuals.

Ethical objections have not caused therapists to cease to use aversive therapy in homosexuality. With appropriate controls, its use is advocated in handbooks of behaviour therapy (Marks, 1976). Many therapists (Rechter and Vradlic, 1974) believe that it is unethical to deny this treatment to patients like the clergyman who sought help from Silverstein. What in fact would be the legal position of a therapist who both denied this treatment and refused referral to such a patient who then committed suicide? The effect of ethical objections has been to cause journal editors to be reluctant to publish research evaluating aversive therapy. As the research already published on controlling compulsive homosexual behaviour has largely utilized aversive therapies, failure to publish such research will result in therapists continuing to use aversive therapy without further evaluation. If nonaversive approaches of comparable efficacy to aversive therapy exist or are developed therapists are unlikely to be convinced of this without studies comparing these with aversive techniques of known efficacy.

The ethical objections to behaviour therapies in homosexuality are based on a misconception of the aims of many therapists using them. These therapists consider there are cogent ethical reasons against denying subjects behaviour therapy for uncontrollable homosexual urges. While they continue to use such therapy in a manner consistent with

their ethics it would seem advisable that their practise remain subject to public scrutiny, including evaluation in published research.

IMAGINAL AVERSIVE STIMULI

Gold and Neufeld (1965) developed an aversive procedure which they considered more ethically and aesthetically acceptable than the previously used techniques. They reported that reduction in homosexual urges followed this treatment in which the patient while relaxed, visualized homosexually arousing images followed by aversive images. Cautela (1967) termed this treatment covert sensitization and noted a reduction in homosexual urges following its use in three patients.

Callahan and Leitenberg (1973), using a single-subject design, compared covert sensitization with aversive therapy in three homosexuals. The aversive procedure was that introduced by Bancroft (1969) in which the patients received electric shocks contingent on their showing penile circumference increased to pictures of nude males. Penile circumference changes can be in the reverse direction to penile volume changes when the latter are consistent with the subjects' awareness of sexual arousal (McConaghy, 1974b, 1977a). It was suggested that this results from the increase in blood flow associated with commencing erection not being sufficient to maintain increase in circumference as the penis increases in length. Hence in some subjects initial circumference decrease accompanies volume increase with erection, and the reverse with detumescence. The aversive procedure used by Bancroft and subsequently by Callahan and Leitenberg could therefore result in some patients receiving shocks when they showed penile detumescence to pictures of males.

Bancroft (1969) reported that following treatment only 3 of 10 patients treated showed definite reduction in homosexual urges and two showed an increase. Of the patients treated by Callahan and Leitenberg, two reported an increase and the third no change in homosexual urges with the contingent aversive procedure. As was pointed out by McConaghy (1977a) with other forms of aversive therapy it is not unusual for homosexuals to report no change following treatment, but a report of increase in homosexual urges is infrequent. Of 126 patients treated with aversive procedures in three studies, three reported increase and a further three possible increase in homosexual feelings following treatment (McConaghy, 1969; McConaghy and Barr, 1973; McConaghy *et al.*, 1972). It would seem either that aversive therapy contingent on penile circumference increases is less effective than other forms, or that the patients treated by Callahan and Leitenberg were not typical of the majority of homosexual subjects who seek aversive therapy. In view of this and of the inapplicability of single-subject research design to evaluation of irreversible treatment effects (McConaghy, 1977a) no conclusions can be drawn from the study of Callahan and Leitenberg regarding the relative efficacy in treating compulsive homosexuality of covert sensitization as compared with a form of aversive therapy established to be effective in comparison with a placebo procedure. The present study was carried out to provide data for such a comparison.

METHOD

Twenty homosexual patients who requested behaviour therapy to reduce homosexual urges or behaviour were informed that if they wished to accept treatment they would be randomly allocated to receive either an aversive procedure or covert sensitization. They could terminate treatment at any stage but would be expected to return one year following its commencement for interview and assessment. If they accepted these conditions they were to pay \$30.00 which would be returned to them at the completion of the year follow-up interview. If they showed an inadequate response to one treatment they would be offered the second treatment prior to one-year follow-up. Each patient was admitted to hospital for five days for assessment, interview and treatment.

Assessment

Prior to, one month and one year following commencement of treatment patients were

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Aversive treatment

This was administe to be as effective in re ing (Feldman and Mi effective than a place nude males the 12 to randomly divided int turn, the same set be four slides was show second of exposure electric shock to the having been instructe The level of shock u livered from a Grass and ring fingers of th jelly.

Covert sensitization

This treatment wa Each patient was ask the fantasied or real he would find aversi becoming physically surprised while eng arrested and charged ation and then while control, a descriptio was completed he v providing a descripti patients visualized th sive situations.

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interviewed by one of the authors (M.A.) who took no other part in the study. He reported that patients obeyed an instruction not to reveal information to him concerning the nature of the treatment they received and he remained unaware of this. At follow-up interviews he determined the degree of change in the patients' sexual feeling and behaviour, as reported in the results. This form of determining response to treatment was similar to that employed in previous studies of aversive therapy by McConaghy and his colleagues (McConaghy, 1969, 1975; McConaghy and Barr, 1973; McConaghy *et al.*, 1972). In these studies the 157 subjects' penile volume responses to moving pictures of nude men and women were recorded before and following treatment. Aversive therapies produced no specific change in these responses (McConaghy, 1975, 1976) so they were not recorded in the present study.

Aversive treatment

This was administered in the simple forward classical paradigm which had been shown to be as effective in reducing compulsive homosexual behaviours as avoidance conditioning (Feldman and MacCulloch, 1971; McConaghy and Barr, 1973) and significantly more effective than a placebo procedure (McConaghy, 1975). Patients selected from 60 slides of nude males the 12 to which they experienced greatest sexual arousal. The 12 slides were randomly divided into three sets of four. In each treatment session one set was used in turn, the same set being shown every fourth treatment session. In a session each of the four slides was shown for 10 sec at approximately 3 min intervals. During the final second of exposure of each slide and for 1 second following, the patient received an electric shock to the fingers. The patient determined the level of shock he received, having been instructed that the level was to be unpleasant but not emotionally upsetting. The level of shock used ranged from 30–100V. Shocks consisted of 1 msec pulses delivered from a Grass S4 stimulator at the rate of 100 pulses/sec to the tips of the index and ring fingers of the left hand through 1.5 cm solder electrodes coated with electrode jelly.

Covert sensitization

This treatment was administered following the procedure described by Cautela (1967). Each patient was asked to describe three or four typical episodes in which he carried out the fantasied or real behaviour he wished to control, and a similar number of situations he would find aversive, either physically or psychologically. Aversive situations included becoming physically ill and vomiting over his surroundings; being verbally abused; being surprised while engaged in homosexual activities by friends or relatives; and being arrested and charged. In the treatment sessions the patient was initially trained in relaxation and then while relaxed asked to visualize carrying out the behaviour he wishes to control, a description of the behaviour being given by the therapist. Before the behaviour was completed he was asked to visualize the aversive situation, the therapist again providing a description. Treatment sessions lasted about 20 min in the course of which patients visualized three or four scenes involving homosexual activity followed by aversive situations.

All patients received 14 sessions of treatment during the five days they were in hospital. They returned three weeks later for follow-up assessment. If they reported no or an inadequate response to treatment they were offered the alternative therapy. They were subsequently interviewed at two to three monthly intervals. If they reported waning of the treatment effect they were offered the alternative therapy.

All patients completed the sessions of treatment in hospital and 18 attended the one-month follow-up interview. Two who lived over 100 miles from the hospital reported their response in answer to a questionnaire, at three weeks and one year following treatment. Two patients whose homosexual behaviour remained uncontrolled following covert sensitization requested aversive therapy at seven and eight months following the initial treatment. Their response at this time is reported as that at one-year follow-up. A patient who received covert sensitization left for overseas at eight months following

treatment and did not maintain contact. His response at this time was reported as that at one-year follow-up.

Subjects with no or minimal experience of heterosexual intercourse were offered in addition to the above therapy referral to a female surrogate sex therapist. Four accepted, two of whom had received aversive therapy and two covert sensitization. Patients were not offered training in social skills and dating behaviour as in the author's experience this training has minimal effect in increasing homosexual subjects' heterosexual experience. This is consistent with the findings of James (1978) discussed earlier.

The patient group

As in previous studies (McConaghy, 1979, 1970, 1975; McConaghy *et al.*, 1972, 1973) all persons conscious of homosexual urges who were not overtly psychotic and after discussion of their motivation and of the effects of the treatment wished to have these urges reduced or eliminated were accepted for treatment. The majority were referred by other psychiatrists. Their ages ranged from 20 to 41, with a median of 29 years. Eight were married, seven of whom were having regular intercourse with their wives. One had ceased intercourse over a year prior to treatment. Six of the eight were having regular homosexual relations prior to treatment. One of the other two had never had homosexual relations and the other, not for several years. They were distressed by the intensity of homosexual fantasies and urges. Of the single subjects five were having regular homosexual relations, five had never had homosexual relations, one had a single episode a few years previously while attending group therapy and one had occasional relationships in adolescence. Seven of the single subjects had never experienced heterosexual intercourse, three had done so on one occasion and two regularly prior to treatment.

RESULTS

Table 1 summarizes the feelings and behaviour reported by patients at three weeks and one year following the initial week of treatment. The estimation of change in heterosexual and homosexual desire was based on the patient's awareness of the amount of sexual interest in men and women and the amount and nature of sexual fantasy, including masturbatory fantasy. Sexual relationships reported are those occurring in the three weeks and the year following treatment. If no homosexual relations occurred in the three weeks following and prior to treatment, this is recorded as "None, unchanged" at three weeks. If none occurred in the year following and prior to treatment, this is recorded as "None, unchanged" at one year.

Referral to the surrogate therapist following one-month follow-up had little influence on response to treatment at one-year follow-up. Only one of the four subjects referred continued to attend the therapist on more than six occasions and he had not had intercourse at one-year follow-up. Two of the others had intercourse with the surrogate once. Both had had heterosexual intercourse once prior to treatment, but not in the year preceding treatment. The response of the four patients referred for surrogate therapy at one-year follow-up is recorded in Table 2.

DISCUSSION

The response to both procedures in this study was approximately the same as that found to aversive therapies in previous studies (McConaghy, 1975; McConaghy *et al.*, 1972, 1973). At one year following treatment approximately half the patients reported a possible or definite reduction in homosexual feelings and behaviour. Approximately a quarter of the patients reduced the frequency of or ceased homosexual relations, a further 40% continued to refrain from homosexual relations as they had done prior to treatment. There were no consistent trends for the reduction in homosexual feelings to be greater following aversive therapy or covert sensitization, a slightly better response occurring to covert sensitization at three weeks and to aversive therapy at one year. More patients reported reduction in homosexual behaviour following aversive therapy, but random allocation had resulted in more patients who had no homosexual relations receiving

Table 1.

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Table 1. Response at three weeks and one year after behaviour therapy

	Aversive therapy		Covert sensitization	
	Three weeks	One year	Three weeks	One year
Heterosexual				
Desire				
Increased	3	1	7	3
Possibly increased		2	3	1
Unchanged	7	6		6
Possibly reduced				
Reduced		1		
Unknown				
*Relations since treatment				
Increased	2	2	2	2
Unchanged	2	2	3	2
Reduced	1			
None, unchanged	5	5	5	6
None, reduced		1		
Unknown				
Homosexual				
Desire				
Increased				
Possibly increased		1		2
Unchanged	2	5		4
Possibly reduced	3		4	1
Reduced	4	3	4	3
None	1	1	2	
Unknown				
*Relations since treatment				
Increased		1		1
Unchanged	3	3	1	1
Reduced	1	3		2
None, unchanged	3	2	8	6
None, reduced	3	1	1	
Unknown				

* Heterosexual relations refers to sexual intercourse; homosexual relations to any contact of a sexual nature.

covert sensitization than aversive therapy so they were unable to show this measure of response.

More patients reported increase in heterosexual feelings following covert sensitization than aversive therapy, particularly at the three weeks assessment. However there was no difference in the number of patients who increased the frequency of heterosexual intercourse following either treatment. It has been argued previously (McConaghy *et al.*, 1972; McConaghy, 1975) that aversive therapy produces reduction in homosexual feelings but no specific increase in heterosexual feelings, the increase reported being in part a placebo effect and in part consequent on the reduced awareness of homosexual feelings.

Table 2. Response at one year for four patients referred for surrogate therapy

	Subject	Homosexual		Heterosexual	
		Desire	Relations since treatment	Desire	Relations since treatment
Received aversive therapy	1	possibly reduced	none unchanged	possibly increased	unchanged
	2	unchanged	none unchanged	possibly increased	increased
Received covert sensitization	1	possibly reduced	none unchanged	possibly increased	unchanged
	2	unchanged	reduced	unchanged	increased

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This is consistent with the finding of Birk *et al.* (1971) that significantly more patients reported reduction of homosexual feelings and behaviour following an aversive compared with a placebo procedure, whereas there was no consistent difference in heterosexual behaviour following the two procedures. Bancroft (1970) reported significant diminution in homosexual behaviours but nonsignificant increase in heterosexual behaviours following aversive therapy or systematic desensitization.

It is possible that aversive therapy or covert sensitization presented in other temporal sequences or in a greater number of sessions would be more effective. There are no controlled studies which have investigated this. What has been shown in a series of controlled studies is that aversive therapies administered in a variety of conditioning paradigms produce apparently equivalent reduction in homosexual urge. Aversion-relief consisting of 1050 pairing of phrases describing homosexual behaviour and electric shocks produced an equivalent response to 28 pairings of nausea produced by apomorphine and slides of nude males (McConaghy, 1969, 1970). The latter treatment produced an equivalent response (McConaghy *et al.*, 1972) to the elaborate anticipatory avoidance procedure developed by Feldman and MacCulloch (1971) on the basis that it would prove a particularly effective conditioning technique, but which they found to produce an equivalent response to a simple classical conditioning technique. This finding of equivalence of the two techniques by Feldman and MacCulloch was replicated with the addition that a backward conditioning technique also produced an equivalent response (McConaghy and Barr, 1973). The present study has provided evidence that covert sensitization and a classical conditioning aversive procedure produce equivalent responses.

The techniques employed in the studies quoted differed widely in number of pairings of 'conditioned' stimuli (phrases or images evoking homosexuality or slides of nude men) and of 'unconditioned' stimuli (electric shocks, injections of apomorphine or aversive images). The 'conditioned' and 'unconditioned' stimuli themselves differed in strength and the sensory modality and conditioning paradigm in which they were administered. It was shown by Pavlov (1927) that the strength of a conditioned response is determined by such variables as the strength of the conditioned and unconditioned stimuli and the sensory modality and paradigm in which they were administered. If aversive therapy acted by conditioning it would be highly unlikely that all these different techniques would produce equivalent responses. Also it is rare that a conditioned aversion follows aversive treatment (Bancroft, 1969; McConaghy, 1969).

As aversive therapies in homosexuality rarely produce conditioned aversion to homosexual behaviour and do not alter objective measures of sexual orientation (McConaghy, 1975, 1976) yet reduce the strength of homosexual urges (Birk *et al.*, 1971; McConaghy, 1975) it was suggested (McConaghy, 1980) that aversive therapies act not by conditioning but by inhibiting arousal associated with failure to complete habitual behaviours. Following these therapies patients report they no longer experience a feeling of tension and anticipatory excitement when in the proximity of situations such as beats or lavatories where they frequently carried out homosexual behaviour in the past. It was hypothesized that stimuli such as these situations activate central nervous system behaviour completion mechanisms in the subject. When the subject fails to carry out the behaviour these mechanisms excite the arousal system and the subject experiences a high level of tension and anticipation which drives him to complete the behaviour he was trying to avoid. Aversive therapy reduces the level of arousal allowing the subject to better control his behaviour if he so wishes.

A related theory was suggested by Bergin (1969). He described a homosexual male who experienced an "agonizing struggle with his sexual impulses". By careful assessment of the events immediately preceding the arousal and consummation of a sexual impulse in this man, Bergin noted a spiralling sequence of stimuli and reactions which as they mounted in intensity, became impossible to control. Bergin described the phenomenon as an impulse-response chain.

Thomas and De Wald (1977) advanced evidence that neural mechanisms exist which

act in a manner similar to that of the authors related the likelihood of alternation of positive and negative forebrain structures and the hippocampus.

"The septum is responsible for generally implicated in an apparent reduction of sexual behaviour." (p. 225)

If the theory is correct, the completion mechanism of homosexual behaviour, the use of no specific implications be heterosexual, as in the patients treatment produces an equivalent response appear to be preferable aversive sexual behaviour more effective.

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act in a manner similar to that of aversive therapy as postulated by this theory. These authors related the loss of motivation following the experimental neurosis (produced by alternation of positive and negative stimuli, as in aversive therapy) to the action of forebrain structures including the septal areas, the area of the diagonal band of Broca and the hippocampus:

"The septum has important inhibitory connections to hypothalamic areas responsible for emotional behaviour, including the lateral hypothalamic area . . . generally implicated in reward, and the posterior hypothalamic area generally implicated in aversion. The fact that septal stimulation in the cat produces an apparent reduction of anxiety and fear was recently confirmed in our laboratory." (p. 225)

If the theory is correct that compulsive sexual behaviour is driven by behaviour completion mechanisms and not by the underlying sexual drive which initiated the behaviour, the use of behaviour therapies to aid patients to control such behaviour has no specific implications concerning the nature of this underlying sexual urge, whether it be heterosexual, as in exhibitionism, voyeurism or pathological jealousy, or homosexual, as in the patients treated. The results of the present study suggest that covert sensitization produces an equivalent effect to aversive therapy using electric shocks and so would appear to be preferable as a treatment of first choice in helping patients control compulsive sexual behaviour until a completely nonaversive therapy is shown to be equally or more effective.

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Summary—Trade-off between the observed and expected inverse relationships between depression and social engagement in the elderly. Correlational studies suggest that elderly people with depression are less socially engaged but that this relationship is not necessarily causal. Their behaviour is influenced by their environment and the importance of the environment for the engagement of elderly people in social environments aims to be more on the individual level.

Recently a number of studies (e.g. Ferster, 1972; Ferster, 1973) have shown that depression is associated with a lack of reinforcement and particularly well demonstrated in pleasant and rewarding situations.

Lewinsohn and his colleagues (Lewinsohn and Rohlfing, 1973) have shown that many depressed people have a lack of interest, feelings of rejection, psychosomatic symptoms and a lack of behaviour.

Furthermore, many studies (e.g. Lipman and Slater, 1979), and with the exception of Lipman and Slater, the Wessex Health Research Unit (Lipman *et al.*, 1979).

They, and other researchers, have been providing activities to elderly people, suggesting that 'bleak and depressive' settings for the elderly in activities can be provided with materials.

In a comparative study of depressed younger and elderly and the dep