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CHAPTER 1

INTRODUCTION AND STATEMENT OF THE PROBLEM

Bieber, Dain and Dince (1962) define a homosexual as one who "engages repeatedly, in adult life, in overt sexual relations with members of the same sex." In reference to Bieber et al.'s definition, Marmor (1965) points out that such a definition does not concern itself with the diverse nature of homosexual behavior. Feldman and MacCulloch (1971) emphasize that in the analysis of homosexual behavior it is important that the researcher be aware of the diverse nature of the problem in that treatment outcome may be due to differences in sexual disposition and not procedure used.

Marmor (1965) also reports that there is a tendency to use the term as a label without recognizing the different motivational and drive aspects that contribute to an individual's predilection toward homosexual involvement. Bieber et al.'s (1962) brief operational definition fails to make a distinction between those who engage in homosexual behavior out of an intense sexual attraction to members of the same sex and those who engage in it for a variety of other reasons. For example, prolonged heterosexual deprivation can be a contributing factor in homosexual participation. Ideally, the diverse

behavioral components and motivational aspects of the disorder should be combined to derive an acceptable definition; neither element can or should be ignored (Marmor, 1965). We choose, therefore, to define homosexual behavior as diverse sexual involvement ranging from covert to overt sexual activity, from solitary to multipartner involvement, from superficial to deep attachments, and from rare to frequent sexual activities motivated in adult life by a definite same sexed preferential erotic attraction.

The first scientifically reported treatment of homosexuality was by Kraft-Ebbing in 1934. His investigation was encouraged by an increased interest in the medical etiology of sexual deviations. Since Kraft-Ebbing, various forms of therapy have been used in the treatment of male homosexuality. In general, psychoanalytically oriented psychotherapy has been the prominent traditional treatment, but in recent years behavioral approaches have received increasing support, particularly those incorporating aversive conditioning procedures.

Aversive conditioning procedures have been successful in treating homosexuality (Feldman & MacCulloch, 1965), alcoholism (Franks, 1960), exhibitionism (Evans, 1968) and pedophilia (Marshall, 1971). Eysenck (1971) specifies that aversion therapy is a behavioral technique principally used for disorders that are "socially undesirable or undesirable in the patient's own long term

interests, but which he finds reinforcing at least in part." Wolman (1973, p.384-85) defines aversion therapy as the "response inhibited by the evocation of an incompatible response to which the person reacts with avoidance." The conditioned stimulus (CS) is followed by an intense unconditioned stimulus-unconditioned response (UCS-UCR) combination and according to learning theory, after an appropriate number of pairings the CS will no longer elicit pleasure but displeasure (pain and anxiety). The chief goal of aversion therapy is to reduce the probability of inappropriate response patterns which interfere with normal societal adjustment. The diminution or modification of inappropriate response patterns will encourage the likelihood of acquiring and strengthening appropriate alternative behaviors (McConaghy, 1967).

The present study is an effort to investigate only one treatment factor used in aversive conditioning of male homosexuality. The principal focus will be to determine whether the use of nude male and female pictures is a necessary requisite for successful treatment utilizing Behavioral techniques. A broader objective is to come to a more concise understanding of what the relative effects are of visual stimuli commonly used in the aversive conditioning part of the Behavioral treatment. Male homosexuality was taken as the clinical problem because of the need in this area for definitive research on specific treatment factors within Behavioral treatments (Bancroft,

1970; Eysenck, 1969; Feldman & MacCulloch, 1965, 1971; Rachman & Teasdale, 1969).

Numerous studies have been conducted that have shown the effectiveness of Behavioral treatments emphasizing aversion therapy in the treatment of sex role inversion (Bancroft, 1966; Birk, Huddleston, Miller & Cohler, 1971; Feldman & MacCulloch, 1965, 1971; Freund, 1960; McConaghy, 1969; Tanner, 1973). Even though aversion therapy has been extensively used in treating male sex role inversion, there is disagreement over procedure; in fact, the technique in general is still criticized by some (Eysenck & Rachman, 1965; Rachman, 1967). Such criticisms could be due in part to the uneven progress of the technique over the past several years (Beech, 1969; Eysenck, 1971; Rachman & Teasdale, 1969). There is considerable research evidence supporting the need for continued exploration of Behavioral techniques emphasizing aversive conditioning as a treatment for male homosexuality (Beech, 1969; Lazarus, 1973; Solyom & Miller, 1965; Tanner, 1973a; Thorpe, Schmidt & Costell, 1964).

Despite criticism and expressed need for modification of the technique, the success rate for aversion therapy has been encouraging. Feldman and MacCulloch (1965) found that their approach was successful with approximately 60 percent of their patients. Their research, and that of others (Birk, Huddleston, Miller & Cohler,

1971; McConaghy, 1971; MacCulloch, Birtles & Feldman, 1971; Tanner, 1974) would suggest that aversive conditioning is a preferrable therapeutic alternative. With that basic assumption, the goal should be to improve the probability of the treatment's effectiveness, while at the same time account for what aspects of the treatment lend most to its successful outcome.

A secondary consideration in choosing Behavioral treatment of male homosexuality is that such a treatment approach lends itself to more concise experimentation. Aims of treatment can be clearly defined, manifest behavior can be operationally defined and overt responses can be objectively measured physiologically.

STATEMENT OF THE PROBLEM

A distinguishing characteristic that Behavior therapies (incorporating aversive techniques) usually include in the treatment of male sex role inversion is a reliance on nude male and female pictures as visual cue stimuli (VCS) (Bancroft, 1970; Birk et al., 1971; Callahan & Leitenberg, 1973; Feldman & MacCulloch, 1965, 1971; Freund, 1960). The assumption that nude VCS are necessary or even helpful should be experimentally determined. In a discussion of the conditioned stimulus (CS) in aversive conditioning, Eysenck (1971) emphasized that there is minimal research evidence to indicate that one CS is more successful than another. Compounding

the problem of meaningful research are the numerous varieties of CS employed in aversive conditioning. Bancroft (1974, p. 33) categorized the CS used in aversion therapy into four broad areas:

(1) an external deviant stimulus (e.g. pictures--VCS, tape recording of reading material)
(2) an overt deviant act (e.g. cross dressing of the transvestite)
(3) deviant mental imagery or fantasies
(4) a physiological response to a deviant stimulus (e.g. erection)

The emphasis of this study is on the comparative effects of clothed versus nude male and female VCS used in the Behavioral treatment of male homosexuals.

In treating male sex role inversion with aversive conditioning, the effect of nude versus clothed VCS has never been investigated. The following issues in the use of nude VCS prompted the design and implementation of this study:

1. Availability; the use of nude stimuli is not always convenient or practicable, because in some communities it is difficult to procure the type of pictures traditionally used in aversive conditioning.

2. Patient affect and effect on outcome; an individual seeking treatment may find such pictures offensive in a way that could interfere with treatment outcome.

3. Community standards; community standards must be considered, especially in light of the recent Supreme Court decision allowing communities to impose restrictions on the sale and use of

suggestive materials. Roston and Sherrer (1973) cite a decision passed down from the Missouri Supreme Court (Zipkin v. Freeman) which decision implied the possible danger of "departing too far from the ingrained mores of their (the 'practicing psychologists') community and the publics' expectation of appropriate practice." This court decision has strong implications for psychologists, who endorse their national organization's (APA) ethical standard, Principle 3: "The psychologist in the practice of his profession shows sensible regard for the social codes and moral expectations of the community in which he works . . . ."

4. Sensitive personal sphere; Roston and Sherrer also point out that a practicing psychologist, "might be held to higher standards than most other professionals; because they are dealing with areas in the private lives of their clientele where the public holds deeply ingrained beliefs, attitudes and prejudices."

5. Adherence to institutional or agency standards; much of the treatment of male sex role inversion today is done in state and privately-supported agencies and institutions. These institutions have the authority to dictate standards of experimental practice. Therefore, the acceptance of nude materials for experimental purposes again is not always tasteful, discrete or feasible. Such considerations support the need for the general intent of this study: to determine whether successful outcome is contingent upon the use of

the kind of nude male and female stimuli typically used in Behavior therapies incorporating aversive treatment procedures.

CHAPTER 2

REVIEW OF THE LITERATURE

First for perspective, we shall review briefly the historical evolution of treatment techniques applied to homosexuality. Secondly, we will briefly describe the evolution of behavioral approaches, with particular emphasis on aversion therapy. Third, the penile pleythysmograph as a measure of male sexual responsiveness will also be evaluated.

Non-Behavioral Treatment Approaches

Psychoanalytically oriented psychotherapy was the prominent non-behavioral treatment used for male homosexuality. Unfortunately, the reported literature is limited to either anecdotal single case studies or poorly controlled survey studies, and these factors have made it difficult choosing appropriate studies for review. There has been little attempt to experimentally test psychoanalytic procedures or objectively compare technique with alternative approaches. The intent of this review of non-behavioral treatment approaches, therefore, will be to introduce the reader to a representative sampling of past and current research on treatment of homosexuality through non-behavioral ("traditional") psychotherapy.

An early comparative study was done by Curran and Parr (1957), they compared 25 homosexuals who had been treated by psychotherapy with a matched group who had received no therapeutic intervention. No significant difference in sexual orientation was found between the two groups at the time of follow-up, length of follow-up was 4 1/2 years. The only difference, which was not significant, is that those patients who had received psychotherapy were more accepting of their homosexuality. The implication of this study is that psychotherapy was not therapeutically effective in remediating homosexual behavior or affect.

Another early study by Woodward (1958) is more optimistic than Curran and Parr's analysis. Woodward examined the current functioning of 48 homosexuals who had completed treatment. The mode of treatment was psychoanalytic psychotherapy. The cases examined were those treated at Portman Clinic, London, England between 1952 and 1953. Woodward's analysis revealed that 44 percent of those who completed treatment had no homosexual or heterosexual interests at the time treatment was concluded. Sexual disposition at the time of follow-up was not given. Only 7 who completed treatment made appropriate heterosexual adjustments.

Allan (1958) reported the outcome of 15 homosexuals he treated using psychoanalytically oriented psychotherapy. Twelve successful and 3 unsuccessful cases were described. In an analysis

of this study by Feldman and MacCulloch (1971) they point out that 6 out of the 12 Ss did not display overt homosexual behavior prior to treatment and that 9 of the Ss merited a Kinsey rating of 4 or less. Feldman and MacCulloch conclude that because of the lack of qualifying data little weight can be attached to the results of this study.

Ellis (1956) using "rational emotive" therapy reports that out of 28 males and 12 females treated for homosexuality, 64 percent of the male group were improved or considerably improved, and 100 percent of the female Ss fell into these two categories. Ellis does not discuss his criterion for improvement nor does he supply any data on the selection of Ss or length of the follow-up. Elaboration of outcome measures or whether a control group was used is also lacking. There is no evidence that Ellis' results have ever been replicated.

A study by Bieber et al. (1962) is the largest reported examination of psychoanalytically oriented psychotherapy in the treatment of male homosexuality. Data were collected from 77 practicing psychoanalysts on 206 men, 106 were homosexuals and 100 were heterosexuals. A major criticism of the study is sampling bias, all individuals included in the sample were fee paying, self-referrals and 70 percent were college graduates. Results of the survey show that 27 percent of the homosexual group were exclusively heterosexual

at the conclusion of treatment. This percentage is high in comparison to the Curran and Parr (1957) and Woodward (1958) studies.

Feldman and MacCulloch (1971, p. 9) suggest that the results obtained by Bieber et al. reflect the motivation of the group to change their sexual orientation and are probably the best that can be expected by psychoanalytic psychotherapy.

In examining patient characteristics Bieber et al. found that the favorable prognostic signs for remediation are: (a) prior heterosexual interest or overt heterosexual experiences, and (b) under 35 years of age. Feldman and MacCulloch's (1971) recent comparative study supports these findings.

No attempt was made to compare and contrast the non-behavioral techniques because (a) published research is poorly controlled and limited, (b) widely different samples of patients were treated, (c) therapists had dissimilar orientation, and (d) difficulty maintaining consistency in therapeutic procedures.

Behavioral Treatment Approaches

Based on theoretical and procedural similarities, behavioral techniques applied to homosexuality can be classified into five categories: (a) Systematic Desensitization, (b) Pairing, (c) Social Retraining, (d) Operant Procedures, and (e) Aversive Procedures.

Each area will be examined in terms of procedures and significant findings.

Systematic Desensitization

Wolpe (1969) defines systematic desensitization as a technique in which deep muscle relaxation is used to inhibit the effects of graded anxiety-evoking stimuli. The rational for treating homosexuality with systematic desensitization is to diminish fear or anxiety associated with heterosexual behavior (Bieber, et al. 1962; Reubenstein, 1958).

Kraft (1967) was the first to report a case of homosexuality treated with systematic desensitization, he indicated that in several of the cases treated systematic desensitization was successful in eleminating homosexual behavior.

The only systematic attempt to evaluate the efficacy of systematic desensitization was reported by Bancroft (1970). Two groups of 15 homosexuals each were treated, one group received systematic desensitization and the second group was treated using an aversive conditioning procedure. Groups were compared at the conclusion of treatment and at six month follow-up. Examination of within group scores indicated that heterosexual arousal increased for both groups immediately after treatment. Heterosexual arousal for the aversion group was greater but not significantly.

Pairing

In these behavioral techniques, sexual arousal is paired with heterosexual stimuli to increase the probability of heterosexual arousal. Evans (1968) and McGuire, Carlisle and Young (1965) postulated that sexual deviancy may become established by the reinforcing effect that sexual orgasm can have on deviant fantasies. The implication of this hypothesis is that if normal fantasies are substituted for deviant ruminations shortly before orgasm occurred it would facilitate extinction of inappropriate fantasies. Thorpe, Schmidt and Castell (1963) tried this approach in treating homosexuality. The patient was asked in a treatment room to masturbate using homosexual fantasies, as orgasm approached he was presented with heterosexual stimuli. This procedure was minimally effective in reducing inappropriate fantasies until it was combined with electric aversion procedures.

In his review, Barlow (1973) discusses a series of single case experiments where the pairing procedure is experimentally analyzed (Herman, Barlow, & Agras, in press). Three male homosexuals chose slides or movies of males as the unconditioned stimulus (UCS) and a female slide as the conditioned stimulus (CS). The design of the experiment comprised backward pairing, classical backward pairing and classical conditioning. During the backward pairing there was no increase in heterosexual responsiveness as

measured by penile change to female slides and scores on an attitude scale. During the classical conditioning phase two subjects showed sharp increases in heterosexual arousal, the third subject did not demonstrate a significant change even though an adequate response to UCS was manifest. This study suggests that classical conditioning is capable of increasing heterosexual arousal in homosexuals. It was pointed out by Barlow that at follow-up, the two subjects who improved had difficulty implementing appropriate heterosexual behavior due to deficits in social skills.

The evidence cited suggests that pairing procedures are therapeutically useful. Additional research is needed to determine how extensively the approach may be used and how pairing may be incorporated with other behavior modalities.

Social Retraining

These procedures teach new social skills usually via assertion training to those individuals who are unable to function effectively in heterosexual situations. Stevenson and Wolpe (1960) were the first to use social retraining in the treatment of homosexuality. Their emphasis was to teach assertive behavior. Those subjects who were successful in learning assertive behavior increased heterosexual functioning and most deviant behavior was eliminated. Edwards (1972) reports that a similar procedure was successful with a pedophilic.

Cautela and Wisocki (1969) conducted a comprehensive treatment program that combined social retraining and aversive conditioning. Behavior rehearsals with a female were implemented to teach covert social and assertive behavior. Of the six who completed treatment, all reported increases in heterosexual responsiveness.

In view of the importance of teaching appropriate assertive behavior in relating to members of the opposite sex it is surprising that there are so few treatment programs incorporating social retraining (Barlow, 1973).

Operant Techniques

Shaping and fading, are two recently reported behavioral techniques based on operant procedures.

Shaping. Quinn, Harbison and McAllister (1970) attempted to increase penile response to heterosexual stimuli through selective positive reinforcement. Before each treatment session the subject was deprived of liquids for 18 hours, sodium chloride and an oral diruetic was also given. When the subject exhibited appropriate heterosexual responses he was reinforced with a lime drink. Intake of liquid was contingent on heterosexual fantasies and/or progressively greater increases in penile circumference. Results showed that penile responses and scores on an attitudinal scale increased over the course of treatment. The chief criticism of this study is the use

of a single subject without reported follow-up. There was also no indication that a comparable study using more subjects would be undertaken at a later date.

Fading. Fading is described as introducing or "fading in" heterosexual stimuli during period of sexual arousal. This interesting technique is described in a single case study by Barlow and Agras (1971). In the "fading" procedure a female slide was superimposed on a sexually attractive male slide with a fraction of the light intensity of the male picture (e.g., 5 percent female, 95 percent male). If a satisfactory erectile response occurred the light intensity of each slide was altered, the female slide becoming increasingly brighter until the female slide alone was projected. Results showed an increase in heterosexual fantasies and sexual responsiveness to heterosexual stimuli.

Aversive Conditioning Applied to Male Homosexuality

Aversive conditioning techniques have been used successfully in reducing the frequency of homosexual behavior (Feldman & MacCulloch, 1965); alcoholism (Franks, 1960); exhibitionism (Evans, 1968; MacCulloch et al., 1971); and pedophilia (Marshall, 1971). Different forms of aversion therapy have been used from time to time over the past forty years. Development and progress of the technique has not been stable because of inconsistent data analysis and

non-standard treatment procedures (Franks, 1963, 1966). Kantorovich (1930) is credited with the first experimental use of aversion therapy (Franks, 1963). Twenty alcoholics were treated using electric shock as the UCS. Kantorovich reports that

> The alcohol was presented with a strong electodermal stimulus and this formed a stable defensive reflex to the alcohol excitant. This reflex took the shape of a withdrawal of the hands and body and the mimio-somatic responses to repugnance (1930, p. 493).

Since Kantorovich's pioneering work, a variety of aversive conditioning techniques have been used for treatment of alcoholism (Franks, 1960). However, prior to the 1950's there appears to be only one reference (Max, 1935) to the treatment of homosexuality by aversion therapy. A classical conditioning paradigm was used by Max; results showed a decrease in the subject's homosexual fixation. Four months after treatment the subject reported a 95 percent degree of success, but no further details were given. In Max's brief study, four major effects pertinent to aversive conditioning were utilized (Rachman & Teasdale, 1969): (a) Use of electric shock to suppress inappropriate behavior and associated thought processes, (b) Devaluation of deviant stimuli was realized through conditioning trials; (c) Shock level had to be re-evaluated after each session; (d) Treatment effects were cumulative.

Applications of aversion therapy in the late 1930's and 1940's were primarily for the treatment of alcoholism. Franks (1963, 1966) points out that most research during this period was inadequately

controlled and implemented which makes meaningful generalizations difficult to extract. Broader use of aversion therapy did not materialize until the 1960's. The resurgence of interest in the United States was due in part to Freund's (1960) work with homosexuals using an emetic as the aversive stimulus.

Freund's (1960) early research was one of the first attempts to employ aversive conditioning using emetic drugs in the treatment of homosexuality. Caffeine and apomorphine were used to produce nausea and vomiting. After the onset of nausea subjects were shown pictures of clothed and nude males. At a later phase of treatment subjects were exposed to nude and semi-nude female stimuli. No rational is offered or support cited for the use of nude, semi-nude and clothed stimuli. Out of 47 Ss who completed treatment, follow-up data indicated that 51 percent showed no remediation, 14.9 percent showed a temporary improvement and 25.5 percent showed total sexual re-orientation. Freund reports that he was unable to finish a complete follow-up on 8.5 percent of the Ss. Even though Freund's overall success rate was low, it is felt that he made two important methodological contributions: (a) Attempts were made to encourage Ss to formulate and involve themselves in heterosexually appropriate activities. The role of the therapist was more than the administrator of noxious stimuli. He was regarded as a resource person who was in a position to encourage and reinforce appropriate heterosexual

activities. (b) Freund developed a penile plethysmograph that enabled him to record the involuntary sexual arousal reactions of the subjects. Even though there has been some discussion as to reliability of this apparatus, it has been a valuable physiological measurement technique in determining the degree to which a subject's deviant sexual proclivities have been changed (Zuckerman, 1972).

The major criticism of Freund's study is his use of emetics as the UCS. In using emetics it is difficult to control the degree of effect of the drug which can result in adverse side effects. The effect and timing of the drug are also difficult to control, this makes repetition of the association between CS and UCR difficult to maintain. Research indicates that those difficulities are not inherent in the use of electric shock, which is the current form of stimulus treatment of homosexuality using aversion therapy (Azrin & Holz, 1966). An investigation by McConaghy (1969) is the only reported attempt to compare chemical and electrical aversion as the UCS in Behavior therapy. Forty homosexuals were treated with either apomorphine or electric shock. The aversion relief method similar to the technique first described by Thorpe et al. (1964) was used. McConaghy describes the method using apormorphine as follows:

> For the first treatment 1.5 mg of apomorphine were administered by sub-cutaneous injection, and after five minutes a slide of a nude or semi-nude male was projected on the wall of the room within patient's vision. If the nausea produced by the apomorphine was not sufficiently unpleasant, the dose was increased with subsequent injections up to 6 mgs. Severe

> nausea lasting about ten minutes without vomiting was considered a satisfactory response and continual modification of the dose was necessary throughout treatment to produce the effect.
>
> The patient was requested to attempt to respond to the slide with a feeling of sexual arousal and to facilitate this was left alone after receiving the injection (1969, p. 725).

Three sessions per day were given for 5 days; 28 sessions of apomorphine in 5 days were administered. The apomorphine was given by single injections at two hour intervals. The 40 subjects were randomly assigned to the 2 treatment groups. Two outcome measures were used: (a) measurement of penile erection in response to a series of short film sequences; 10 showing nude males, 10 showing nude females, and (b) the patients were asked to indicate whether their homosexual or heterosexual desire increased, possibly increased, unchanged, possibly reduced or reduced after treatment. Another consideration was whether heterosexual relationships were improved or unchanged, and whether homosexual acts had occurred or not. McConaghy did not elaborate how the assessments were made nor did he discuss why he used only nude male and female stimuli and not clothed.

Results show a change from a homosexual orientation to a heterosexual orientation in eight of the aversion relief group and four of the apomorphone group. Four of the apomorphine group showed a change in the opposite direction; McConaghy does not discuss probable reasons for these changes. However, McConaghy's findings

support the use of faradic shock as the UCS in aversive conditioning.

A study by Blackmore, Thorpe and Barker (1963) was one of the first investigations to use electric shock as the UCS in the treatment of a sexual deviation. A single individual was treated for transvestism. The S stood naked on an electrified mat and when instructed to do so began dressing in feminine clothing. The S received electric shocks intermittently to the soles of his feet. A buzzer was sounded concomitantly with the onset of shock. Shock and buzzer were cues for him to start undressing, and the UCS would be repeated until all female clothing was off. Escape from shock was achieved by ridding himself of the undesirable clothing; the quicker he undressed the fewer shocks he would receive. The next trial would begin after one minute. Time from onset to first shock was on a variable interval schedule to spread the effect throughout the cross-dressing procedure. Marks and Gelder (1967) used a similar technique in treating transvestism. Six month follow-up indicated that there was no desire on the part of the S to dress in feminine clothing and the relationship with his wife was reportedly improved.

Thorpe, Schmidt and Brown (1964) were the first contemporary researchers to use electric shock using an aversion relief approach. Aversion relief is used to describe the technique because the aversive stimulus is terminated upon the evocation of an appropriate

heterosexual response (e.g., substitution of a female VCS for a male VCS). Aversive conditioning was implemented to devalue and make less probable inappropriate homosexual responses and reinforcement techniques were introduced to facilitate and strengthen appropriate heterosexual responses. A series of homosexually oriented words and phrases were used as the CS. Shock was contingent on presentation of the inappropriate word or phrase. A "relief" word (e.g., girlfriend, breast, etc.) was presented as a signal that the aversion trial was completed. Thorpe et al. postulated that the S would develop a positive association to the relief stimulus. All five subjects who completed treatment were successful in altering their inappropriate sexual behavior. The major weaknesses of Thorpe's et al. study is the small sample size and lack of adequate follow-up. Moreover, no explanation was given as to which and to what degree each treatment variable was significant in the change process. There was also no discussion as to why certain homosexually oriented words and phrases were used and not others.

Thorpe et al. (1964) aversion relief approach undoubtedly influenced Feldman and MacCulloch (1965) in their later more elaborate attempts to systematically apply aversive conditioning using electric shock. Because of the innovative nature of Feldman and MacCulloch's procedures their study is worth discussing in more detail. Initially all Ss underwent extensive psychological evaluations, then they were

asked to assess in terms of sexual stimulus value a large series of slides depicting males clothed and unclothed. The Ss arranged the pictures in a hierarchy according to degree of attractiveness. The hierarchy was made up of eight slides with the least attractive picture first. Each S also put together a series of female slides, with the most attractive first. The authors do not cite evidence or otherwise support the use of nude or clothed male and female stimuli during the initial and later phases of treatment. A shock level was established which the S described as being "very unpleasant." The treatment was carried out in a dark and quiet room of the Maudsley hospital. Feldman and MacCulloch described their treatment procedure as follows:

> The patient is told that he will see a male picture and that several seconds later he might receive a shock. He is also told that he can turn off the slide by pressing a switch, with which he is provided, whenever he wishes to do so, and that the moment the slide leaves the screen, the shock will also be turned off. Finally he is told that he will never be shocked when the screen is blank. It is made clear to him that he should leave the slide on the screen for as long as he finds it sexually attractive. The first slide is then presented. The patient has the choice of switching it off or leaving it on the screen. Should he switch it off within eight seconds he is not shocked and this is termed an avoidance response. Should he fail to turn it off within eight seconds, he receives a shock. If the shock strength is not sufficiently high to cause him to switch it off immediately, it is increased until he does so. In practice this has hardly ever been necessary. The moment a patient performs the switching off response the slide is removed and the shock is terminated. This is termed an escape trial. In addition to switching off, the patient is told to say "no" as soon as he wishes the slide removed. It is hoped that a further increment of habit strength will accrue to the avoidance habit by means of

> this further avoidance response. The usual course of events is: several trials in all of which escape responses are made; a sequence of trials in some of which the patients escapes, and some of which he avoids; a sequence of trials in which the patient avoids every time (1965, p. 170).

A predetermined schedule of reinforcement (withdrawal of aversive stimulus) was implemented if the S successfully avoided three successive trials. In order to make the Ss more responsive to female stimuli, a female slide was introduced contiguous with the removal of the male slide. "That is we attempt to associate the relief of anxiety with the introduction of the female." Feldman and MacCulloch emphasize that the female slide was always removed by the therapist and never the S, "so that the habit of avoiding females is not strengthened in the training situation." But there appears no objective reason for this procedure not to be initiated by the patient from the beginning.

Results showed that out of 16 Ss who completed treatment, 10 showed a "complete absence of homosexual fantasy." Those who were successfully treated were also heterosexually active or had strong heterosexual fantasies. Follow-up on those who completed treatment was of short duration and so it is not possible to assess the long-term effects. In a similar study conducted in 1967, Feldman and MacCulloch substantiated their previous (1965) results. They conducted a one-year follow-up and found that out of 43 treated, 25 were improved, 11 were failures and 7 dropped out of treatment. Ss

who responded least well were over thirty years of age, had high Kinsey homosexual ratings and were assessed as having personality problems. Ss who had had previous heterosexual experiences and interests had the best prognosis for remediation.

Recently Feldman and MacCulloch (1971) conducted a controlled comparison between anticipatory avoidance conditioning (AA), aversive classical conditioning (CC) and one-to-one psychotherapy. Feldman and MacCulloch conceded, due to criticism by Rachman and Teasdale (1969) that CC may have been the significant variable in their anticipatory avoidance procedure. This issue was one of those that prompted their 1971 study. A traditional psychotherapeutic procedure was included because the authors wondered whether

> . . . the enthusiasm of the therapist was being communicated to the patient, together with the fact that a good deal of reinforcement was given in the form of reassurance and praise for reported improvement and certainly could be concluded as a factor in psychotherapy (p. 65).

The AA procedure was similar to the technique they used in their 1965 study, the primary difference was that the reinforcement schedules were systematically altered during treatment so that successful avoiding (and hence closer similarity to the non-treatment situation) could be consistently achieved. Some of the flexibility of the earlier procedure was removed in order to equalize the two treatment approaches. In the CC procedure the S watched a screen and at specific intervals a slide of a clothed or nude male was

projected. In the last half second, the S received a shock. The inappropriate male slide and electric shock were terminated simultaneously. The psychotherapeutic procedure was a didactic one-to-one encounter. The chief topics discussed were sexual and associated personality difficulties. Attitude toward females was also covered. Formal systematic desensitization was not used.

Duration of treatment for AA and CC groups was 24 half hour sessions. The therapy was comprised of 12 one hour sessions. Thirty Ss were treated and randomly assigned to the 3 treatments, 10 in each group. The results indicate that there is no significant difference in outcome between (AA) and (CC) procedures. Franks and Wilson (1973, p. 194) emphasize that the finding that CC is not inferior to AA supports the fact that classical conditioning might be the critical factor in the treatment process. They also point out that because the AA technique is confounded in itself that it would be tenuous to conclude that AA related techniques could be inferior or superior to CC.

The study was criticized on several points (Franks & Wilson, 1973, p. 194-195). (a) The treatment conditions were confounded with therapist characteristics because different therapists conducted the different treatments. (b) The dependent measure used to determine outcome is questionable. MacDonaugh (1972) has criticized the measure used for its subjective scoring system. (c) The second

independent variable, Ss sexual behavior, was not gathered by independent interviewers. (d) Comparison of AA with CC does not adequately demonstrate the role of learning principles in these procedures.

Comparative studies (Bancroft, 1970; Feldman & MacCulloch, 1971; McConaghy, 1969) generate data that help demonstrate the efficacy of specific aversive treatment procedures by identifying specific variables that uniquely contribute to treatment effect. A recent study by Birk, Huddleston, Miller and Cohler (1971) is considered (Bancroft, 1974) to be one of the best controlled comparative investigations using aversion therapy in treating male homosexuality.

The study by Birk et al. (1971) was distinguished by its inclusion of a detailed quantitive assessment; a two-year follow-up and a placebo conditioning control group. The purpose of their study was to "develop and test a combined treatment program for homosexual men." The authors were not only interested in modifying and examining overt homosexual behavior, but in identifying affective and cognitive aspects of the disorder.

A combined treatment program was employed using long-term group therapy and conditioning treatments. The two treatment conditions compared were avoidance learning and a placebo control that did not involve faradic shock. There were eight Ss in each group.

All Ss received treatment while undergoing long-term group therapy. The aversive conditioning was part of a wider therapeutic approach because all Ss received treatment in combination with group psychotherapy. Group psychotherapy was used to encourage heterosexual involvement.

Avoidance learning methodology used by Birk et al. was a modification of Feldman and MacCulloch's (1965) approach. The difference in their approach is that instead of switching to avoid shock, an operant response had to be continued to maintain avoidance. The operant response was used to maintain the presence of heterosexual stimuli. Shock avoidance was paired with heterosexual stimuli presentation.

The placebo conditioning method was identical to the avoidance method but a light was used as the UCS. The light was placed in front of the S and could be escaped from or avoided in the same way.

Duration of treatment was approximately six months involving between 20 and 25 half hour sessions.

Significant differences between groups were found at a two-month follow-up. The shocked group showed a total of 22 points change in the Kinsey rating, the placebo control group showed a 2 point change. However, difference between groups was no longer significant when the subjects were tested one year later.

A second dependent measure used by Birk et al. to access change was behavioral ratings; there was a greater reduction of homosexual behavior for the aversive conditioning group as compared to the placebo control. This finding must be qualified, however, there was a much higher level of homosexual behavior on the behavioral measures in the shocked group and hence more room for change. Changes in heterosexual ratings by outside psychiatrists on several nonsexual scales show that the shocked group had done less well than the placebo group.

The primary criticism of the study is that accurate interpretation is difficult because careful assessment of change was not carried out until a year after treatment.

One implication of the study is that the incorporation of shock in the conditioning procedure resulted in more immediate change in level of homosexual interest and behavior than a similar procedure using other stimuli in place of shock.

The intent of the latter part of this review has been to acquaint the reader with some of the better reported studies using aversive conditioning applied to male homosexuality. The important features of these studies that prompted inclusion were their methodological advances and/or significance of results. Few investigations were considered noteworthy when viewed in terms of methodological innovations or significance of results. Most reported

studies using aversive conditioning for the treatment of male homosexuality have been either uncontrolled single case reports or uncontrolled group outcome studies (Barlow, Leitenberg & Agras, 1969).

In the literature reviewed, it is evident that there is minimal consistency or standardization in aversive treatment approaches. Feldman and MacCulloch (1965, 1971) advocate an anticipatory avoidance procedure; Freund (1960) used a form of classical conditioning; an approach termed "aversion relief" was used by Thorpe et al. (1964); while Birk et al. (1971) used a combination of innovative techniques.

Differing samples of Ss and different therapists make it presumptuous to suggest that a particular format is more successful than another. However, certain methodological procedures have reported encouraging results confirming limited success in the treatment of male homosexuality.

The following is an enumeration of procedures that have been utilized to some extent in most aversive treatment approaches: (a) The association of a noxious stimulus with inappropriate stimuli is effective in helping control or eliminate associative thoughts, (Birk et al., 1971; Feldman & MacCulloch, 1965, 1971; McConaghy, 1969; Thorne, 1968). (b) Use of plethysmographic monitoring to assess pretreatment disposition and posttreatment change (Bancroft, Jones,

& Pullan, 1966; Freund, 1960). (c) The encouragement of in vivo participation in heterosexually appropriate activities to facilitate normal heterosexual role adjustment (Birk et al., 1971; Thorne, 1968). (d) Electric shock is superior to chemical methods and shock intensity needs to be sufficiently high or barely tolerable to effect change (McConaghy, 1969; Tanner, 1973b; Thorne, 1968).

The reported number of successful cases using aversive conditioning is small. This paucity of research does not imply that aversion therapy is not a viable treatment approach. Eysenck (1971) estimates that for every 100 patients treated by desensitization there is only one treated by aversion therapy. A plethora of reasons why aversive procedures have not been utilized to a greater extent have been offered, including that using aversive stimuli to facilitate control or extinction of inappropirate behavior may be ethically questionable. Begelman (1971) posits that it is not the use of aversive stimuli that is unethical but failing to inform the client of the procedure and obtaining written, informed consent from him. He feels that the therapists have an ethical responsibility to apprise the S of the procedure and treatment expectations. The fact the technique requires special equipment, greater expertise, than most conventional Behavior Therapy approaches is a practical factor accounting somewhat for why it is not used more.

Alternative behavioral approaches may be preferable in the treatment of male homosexuality but, up to now, no clearly superior technique has been developed or demonstrated. In support of aversion therapy Thorne (1968) has emphasized that if the goal of treatment is to strengthen a response it is better to reward its occurrence than to punish its absence; conversely, if the treatment objective is the devaluation or reduction in probability of an inappropriate response then it is more effective to punish its occurrence than to reward its absence. The utilization of therapeutic techniques is increased by demonstrated, replicable, comparative research, ease of application and objective remediation of results. As additional research is done using aversive methodology in the treatment of homosexuality and variables contributing to outcome are identified, it is felt that Behavior Therapy incorporating aversive conditioning will eventually develop into a widely used and respected treatment of choice.

The purpose of the present study will be to investigate treatment factors used in Behavior Therapy incorporating aversive conditioning. The principle emphasis will be to determine whether the use of nude male and female stimuli is a necessary requisite for successful remediation of male homosexuality. In all of the behavioral research cited incorporating aversive techniques in the treatment of male homosexuality nude and semi-nude male and female pictures

were utilized. Many of the non-aversive behavioral techniques discussed also used nude male and female pictures. None of the studies offered an empirically validated rational for the use of nude stimuli as opposed to clothed. Whether nude pictures are more effective than clothed in the treatment of male homosexuality has never been investigated. Inherent problems in the use of nude stimuli such as (a) availability of materials; (b) patient affect and potential effect on outcome; (c) community and institutional standards; and (d) ethical considerations prompted the instigation of this study.

The hypothesis to be tested is that there will be no difference in outcome between two experimental groups receiving Behavior therapy which incorporates aversive conditioning concomitantly with assertive training. Experimental groups will differ only in terms of the nature of the male and female pictures used in the aversive conditioning phase of treatment. The first experimental group will be exposed to nude male and female stimuli and the second experimental group will be exposed to clothed male and female stimuli.

To statistically evaluate therapeutic change both groups will be compared on five dependent measures (a) subjective rating of male pictures used in treatment (male therapy VCS); (b) subjective rating of female pictures used in treatment (female therapy VCS); (c) pleythysmographic impact measured by penile volume change to a standard set of female slides (female standard VCS); (d) pleythysmographic impact measured by penile volume change to a standard set

of male slides (male standard VCS); and (e) sexual orientation, which will be measured by a self-report questionnaire before and after treatment.

A two factor repeated measures analysis of variance will be conducted on three of the dependent measures (a) rating of male therapy VCS; (b) rating of female therapy VCS; and (c) sexual orientation scores. A non-parametric test, the Mann-Whitney U test will be used to determine significance between experimental groups on the pleythysmographic measures. Separate treatment mean scores for rating of male and female therapy VCS will be done using a t test.

Pleythysmograph As a Measure of Male Sexual Arousal

The pleythysmograph as a measure of male sexual responsiveness will be examined because of the importance of this measure in substantiating treatment effect.

The use of physiological measures in the treatment of male homosexuality is highly recommendable in assessing treatment outcome (Bancroft, 1971; Freund, Sedlacek & Knob, 1965). The empirical value of using only subjective measures is questionable (Birk, et al., 1972). A primary criticism of Feldman and MacCulloch's research is that their outcome measures were subjective in nature (MacDonough, 1972).

Sexual arousal is not a unitary state and so by definition measurement cannot be restricted to subjective measures. Callahan

and Leitenberg (1973) caution, however, that "penile erection is not a reflexive response which allows the therapist an automatic laboratory analogue of a person's sexual behavior in his natural environment" (p. 72). The implication from the Callahan and Leitenberg statement is that a physiological measure alone is not sufficient and that other valid and reliable measures should be used in determining therapeutic change.

A major criterion in determining degree of change from homosexual to heterosexual is the intensity of sexual arousal elicited from male and female sexually oriented stimuli (Bancroft, 1971). In his extensive review of measurement of male sexual arousal, Zuckerman (1971) stipulates that penile erection is the most reliable and objective method of measuring sexual arousal in the male. Bancroft (1973) concurs with Zuckerman, "penile erection is a physiological response to sexual stimulation and more important it is likely to be interpreted as such by the subject."

An appropriate pleythysmographic apparatus to accurately measure penile arousal under experimental conditions was not developed until the mid 1960's. Currently there are several types of pleythysmographic monitoring devices being used in research. Jovanic (1971) reviewed three major types of pleythysmographs being used: (a) the volumetric pleythysmograph (Freund, Sedlacek & Knob, 1965), (b) the mercury in rubber strain gauges (Bancroft, Jones & Pullan,

1966; Fisher, Gross & Zuch, 1965; Karacan, 1969), and (c) the metal ring strain gauges (Barlow, Becker, Leitenberg & Agras, 1970; Johnson & Kitching, 1968).

The use of pleythysmographic monitoring of penile erection was first described and demonstrated by Freund et al. (1965). Their volumetric pleythysmograph measures the increase of the total volume of the penis. In his review, Zuckerman (1971) describes the Freund et al. apparatus:

> Penis is inserted through a flat, soft sponge-rubber ring and an electric rubber tube made from a condom and into a glass cylinder. The cylinder tapers down at the end of a narrow funnel which connects by tube to the volumetric instrument. A sponge-rubber ring which acts as a pad for the cylinder is fitted on the penis. A glass cylinder is attached to the body with straps. An elastic cuff is inflated with air to fill up the broad end of the cylinder to make its base airtight. Supply of air to cuff is shut off and the funnel of the cylinder is connected by tube to the volumetric device (p. 310).

McConaghy (1967) developed a penile pleythysmograph similar to Freund et al.'s (1965) device. The penis is inserted through the open end of a finger stall which maintains an airtight container. The cut end of the finger stall is stretched over a cylindrical tin. A nipple is attached to the closed end of the cylinder and connected by a plastic tube to a Grass pressure transducer. McConaghy first used his pleythysmograph to measure the erotic reaction of 22 homosexual referrals and 11 heterosexual medical students. The device was successful in differentiating between the homosexuals and heterosexuals. The homosexuals showed a greater

response to nude males than to females as compared to the medical students.

Bancroft et al. (1966) developed a transducer that was simpler in design to the Freund model and easier to use. As opposed to Freund et al.'s volumetric device, Bancroft's mercury-in-rubber strain gauge measures change in circumference of the shaft of the penis at one point only. The following is Bancroft's (1974) description of the device:

> Approximately 6 in. of clean silicone rubber tubing of internal diameter 0.025 in. is filled in the following way. Clean mercury is injected into the tube using a syringe and hypodermic needle. Care is taken to ensure that there are no breaks or air bubbles in the mercury column. The open end of the filled tube is then closed with one stainless steel electrode which is simply threaded into the tubing. The other end is then cut just below the hypodermic needle ensuring that the tube remains filled with mercury. The second electrode is then threaded into that end of the tube. The tube and electrode can then be fitted into the perspex carriage and connected via the leads to the Wheatsone bridge circuit and amplifier. The strain gauge is highly sensitive to resistance change, hence electrical contacts must be sound and highly flexible leads should be used. The fracture of just a few stands in a multi-strand lead can cause intermittent contact and render the stain gauge useless (1974, p. 229).

The stain gauge is fitted by the subject around the penis and worn under his clothes. Measurement is determined by change in penile circumference which is registered on a 50 microammeter as changes in current. A change of 2 microampers is equivalent to an alteration of 63 millimeters in the circumference of the penis. The

authors reported that the average increase for a complete erection was 25 millimeters.

Barlow et al. (1970) developed a metal ring gauge similar to Bancroft's device. Barlow et al. maintains that their apparatus is more accurate than Bancroft's because rubber surgical tubing was not used. In the Bancroft strain gauge, the surgical tubing tended to separate at the upper range of volume displacement and therefore interfere with accurate measurement. Barlow et al. also criticized Bancroft et al.'s device in terms of its temperature sensitivity and the fact that they are difficult to build.

A primary advantage of Barlow et al.'s device is that its design is relatively simple. It consists of a strain gauge encompassed in a ring of plastic. The penis is fitted through the ring, which was not reported as constricting or uncomfortable. Measurement of penile volume changes was recorded on Grass Pre-amplifier. The authors reported that the recordings from the penile ring were said to be linear with the volume change within a range of 25-40 mm.

In testing the device, Barlow et al. found the chief disadvantage of their apparatus related to the fact that volume displacement could take as long as five minutes to return to the original baseline. If the level showed a greater displacement it was necessary to re-set the baseline. This could prove annoying to the participant and perhaps interfere with accurate feedback.

The choice of which pleythysmographic measure to employ in treatment or research depends on several factors (Bancroft, 1974; Zuckerman, 1972). Accuracy of measurement is the primary consideration. Freund et al. and McConaghy rely on relative measures and consequently measurement on a known scale is not possible. In contrast, the Bancroft and Barlow devices are easily calibrated with a near linear relationship between penile circumference and change in current. This latter measurement advantage facilitates ease and accuracy of data collection.

A second criterion that must be considered is probability of movement artifact. Freund et al. reported that a movement artifact was detectable and therefore a potential problem at rapid oscillations. Because of its design, the Bancroft strain gauge is less vulnerable to movement artifact. There was nothing reported by Barlow et al. regarding a movement artifact.

Ease of implimentation is a third criterion in choosing an appropriate apparatus. Bancroft et al.'s device is easily fitted by the subject and is worn under his clothes. A major criticism of Freund's apparatus is that it is cumbersome and difficult to use (Bancroft, 1973). Another criticism of Freund et al.'s device which is more pertinent to research is that the design of the apparatus can cause initial arousal unprovoked by experimental stimuli (Zuckerman,

1971). Requiring a subject to insert his penis into an unfamiliar device could also be anxiety producing.

Bancroft's strain gauge was selected for the present investigation because of (a) measurement accuracy, (b) ease in finding materials, (c) building the apparatus, and (d) minimal movement artifact and reliability expectations.

CHAPTER 3

METHODOLOGY

Subjects

Seventeen male subjects (Ss) were used in the study, 14 completed treatment. Selection was on the basis of clinical evidence of homosexuality; absence of psychosis (no prior history); desire for treatment; no history of epilepsy, alcoholism or drug addiction. The nature and extent of homosexual activity ranged from frequent sexual activity with multi-partner involvement to covert activity. Covert activity was restricted to deviant ruminations without significant involvement. Ss were comparable as to level of formal education and age. All Ss were attending college as undergraduate or graduate students; their ages ranged from 18 to 31 years, with a mean of 23.6 years. All Ss who participated were active or semi-active members of the Church of Jesus Christ of Latter-day Saints. They were either self-referrals or referrals from various local agencies to Dr. D. Eugene Thorne of the Psychology Department at Brigham Young University. Each prospective S was offered free treatment if he would participate fully in our research program.

It was mandatory that all Ss chosen to participate sign and have witnessed a prepared statement explaining (a) the experimental nature of the treatment procedure, (b) the use of aversive electric shock, (c) the showing of 35 mm slides that might be construed by S as possibly offensive, and (d) that Brigham Young University was not in any direct way endorsing the procedures used. This was to insure that all Ss were in full agreement and understanding as to what the treatment procedure would involve, provide and demand from them.

Procedure

Two experimental groups of seven Ss each received Behavior Therapy for male homosexuality which combined features such as aversive conditioning and assertive training as developed and described by Thorne (1968), e.g. Electrical Aversion Therapy--EAT. Assertion training is concomitantly employed in this procedure with aversive conditioning to facilitate heterosexual involvement. Thorne's procedure was chosen because of (a) availability of electro-mechanical equipment that had been programmed for the aversive conditioning phase of the procedure, (b) experimenters familiarity with the treatment procedure and technique, and (c) established effectiveness of the procedure in the treatment of male homosexuality.

Treatment received by both groups was the same except for the male and female pictures or visual-cue stimuli (VCS) used. The first experimental group was exposed to nude female and male VCS

and the second experimental group was exposed to clothed male and female pictures. The group exposed to nude stimuli during treatment will be designated in the text as N-group, and the group shown clothed male and female pictures will be designated in the text as C-group.

Both treatment groups were compared after 22 treatment sessions given on an out-patient basis. Each session lasted 50 minutes, approximately 10 minutes was spent with assertive training and 40 minutes with aversive conditioning. The average duration of treatment was three months.

Description of the Aversive Conditioning Phase of the EAT Procedure

1st Step: Reconnaissance. Two sessions were spent with each S reviewing the nature of the treatment procedure, probable expectations, S's responsibilities and answering questions regarding the treatment process. Each S was given the "Sexual Behavior Inventory" to fill out and return.

During the first session each S signed and had witnessed the statement discussed earlier explaining the nature of the treatment procedure and the use of electric shock (see Appendix A).

Ss were told that confidentiality would be practiced at all times and that test data and therapy notes would be kept in a locked file cabinet.

2nd Step: Baseline impact. According to experimental group assigned (randomly) Ss rated either nude or clothed female and male pictures (therapy VCS) on a scale from 1 to 9. A rating of 1 signified sexual repulsion, 5 signified sexual neutrality, and 9 high sexual attraction. Ss were instructed to view each therapy slide until an opinion was formulated, there was no specified time limit that a slide could be left on the screen.

After S had rated therapy slides, a phallometric test was employed to measure physiological arousal to male and female stimuli (standard VCS). A brief explanation was given concerning how the apparatus operated and how it should be fitted on the penis. It was then privately fitted by the S and worn unobtrusively under his clothes.

All participants viewed a series of 30 male slides and 30 female slides (standard VCS). Ss in both groups viewed the same slides which were viewed through a Guki hand slide viewer. Ss were instructed to fantasize whatever was sexually arousing using the picture as the main stimulus for fantasy development. Female standard VCS were viewed first; male standard VCS were then viewed when there was no measurable arousal shown on the pleythysmograph.

Slides were viewed in a darkened room; a partition was placed between S and E to insure privacy for the S and minimize E obtrusiveness.

3rd Step: Conditioned Emotional Response--CER. Pain thresholds to shock were established, the procedure used was similar to the one employed by Epstein and Roupenian (1970). At the beginning of each session pain thresholds were set. A graded series of discrete shocks were delivered to each S at the "belly" of the bicept. Duration of shock was approximately 3 seconds with an intertrial interval of approximately 10 seconds. The intensity of the first shock was .5mA and the intensity of each successive shock was increased by .5mA until either the shock was rated as "barely tolerable" or painful or a maximum level of 4.5mA was reached. If during the conditioning procedure the shock level became more tolerable it was increased in a stepwise manner to avoid habituation, conversely if the shock level became intolerable it was decreased in a stepwise manner.

The CER phase was accomplished through the use of respondent procedures, i.e. the therapy VCS (35 mm slides of nude males in different poses for N-group and clothed males in different poses for C-group) was paired with the UCS (the electric shock). Each CER trial was comprised of 30 male therapy VCS individually shown. S was instructed and encouraged from time to time to project his "typical" homosexual fantasies and thoughts to the scenes depicted

in each slide. Three CER trials occurred each session for six to ten sessions.

The purpose of this phase was to produce a conditioned aversion toward male sexual stimuli and more particularly aversion of sexual thoughts elicited by previously similar male stimuli. The objectives were (a) to generate a conditioned anxiety reaction to the presentation of inappropriately stimulating male VCS and the accompaniment of homosexual fantasies or thoughts, and (b) to associate the presentation of appropriately stimulating female VCS (and the accompaniment of appropriate heterosexual fantasies or thoughts) in place of the male VCS as cues for relief of anxiety. Note: introduction of female VCS in subsequent phases was always contingent on the removal of the male VCS and the termination of sexual thoughts previously associated with the male VCS.

Criterion for termination of this phase was determined by (a) completion of at least six sessions, (b) reported inability or pronounced difficulty fantasizing to male stimuli, (c) reported difficulty establishing or maintaining interest in the male slides, and (d) reported indifference or repulsion toward the male slides. These criterion were determined by subjective verbal reports from each S.

4th Step: Foundational Escape and Avoidance Procedure. This phase was implemented after the CER toward the inappropriate male stimuli had been established. The purpose of this phase was to

provide rudimentary-foundational approach tendencies toward female stimuli and further foster avoidance tendencies toward male stimuli (Birk, Huddleston, Miller & Cohler, 1972; Feldman & MacCulloch, 1965, 1971; Thorne, 1968).

As each inappropirate VCS appeared on the screen the S was able to avoid shock by depressing a plunger (i.e. the escape-avoidance response) at his left side. As the plunger was depressed the male therapy VCS was instantaneously replaced by an appropriate female therapy VCS. Each female therapy VCS appeared for 10 seconds, at the end of which time, another inappropriate VCS appeared and the S could again avoid shock if he chose. If the plunger was not actuated within 4-8 second intervals or if the S did not wish to avoid shock then shock was delivered for the remainder of the VCS interval (i.e., 8 seconds). However, if during the VCS interval the S wanted to escape the shock he was allowed to do so by depressing the plunger at which time the male therapy VCS was replaced by a female therapy VCS. Ss were told that they would never receive a shock if an appropriate (female) slide was on the screen.

Phase four was terminated after at least four sessions or when S consistently exhibited a high operant level of escape-avoidance responses.

5th Step: Variable Operant-Respondent Programs (VORP). The fifth phase comprised two type of trials which were implemented to raise the level of anxiety (CER) toward male VCS and increase resistance to extinction of the CER and reduce its generalization decrement.

Type 1: Reinforcement trials on a fixed ratio schedule. During this phase it was necessary for the S to depress the plunger three times to avoid shock. All attempts to avoid or escape shock were allowed to succeed immediately. After a minimum of two sessions and when S avoided shock 25 out of 30 trials, Type 2 phase was introduced.

Type 2: Combined delayed and non-reinforced trials on a variable ratio schedule. During this phase the S did not know the number of times he would have to depress the plunger to avoid shock. Occasionally the escape/avoidance plunger was rendered inoperative or ineffective and attempts to avoid or escape shock were not allowed to succeed. Also the order of therapy VCS was systematically changed during this phase. Criterion for termination of this phase was completion of at least four sessions and consistent attempts to avoid or escape shock by the fourth session.

6th Step: Approach Learning Situation. During this phase the S viewed appropriate female therapy VCS without the presentation of alternative inappropriate male therapy VCS. The S was encouraged

to relax and verbalize his reaction to the female VCS. Initially he was prompted by the E in what to look for, how to verbalize reactions, etc. The amount of time the female therapy VCS was left on the screen was left to the discretion of the S. After S reported ability to relax and verbalize reactions to female therapy VCS he was allowed to view male therapy VCS without the presentation of the female therapy VCS. During presentation of male therapy VCS, S verbalized his sexual reactions to the slides. While S verbalized to the inappropriate male therapy VCS he received intense shocks on a random variable schedule.

Facility in verbalizing heterosexual reactions to the female stimuli, subjective evaluation of progress and completion of four sessions were the criterion for termination of the approach learning situation.

7th Step: Posttreatment Evaluation. Posttreatment data were gathered two weeks following the last session. Ratings of male and female therapy VCS were completed and physiological impact of standard VCS were assessed. (The same pretreatment procedure was followed.) The "Sexual Behavior Inventory" to assess sexual orientation was also filled out again at this time.

Ss were shown their pre and posttreatment scores, at which time impressions of the procedure and personal outcome data was discussed. Ss were not told that scores would be discussed with them prior to evaluation.

Description of the Assertion Training Phase of the EAT Procedure

To facilitate normal heterosexual role adjustment all Ss were involved in assertion training. The procedure followed was a modification of an assertion training program developed by Flowers and Guerra (1974). Approximately 10 minutes of each treatment session was spent in developing and rehearsing appropriate assertive behavior.

Control of the procedure was maintained by (a) strict adherence to the 10 minute time allotment, (b) material covered during the 10 minute period pertained only to aspects of the assertive training procedure, (c) the same sequential steps outlined in the procedure were followed by all participants, (d) the same simple instructions for each phase of the procedure were read to the participants, (e) questions pertaining to assertion training were answered as specifically as possible, and (f) only phrases such as "Good job, You're doing well, and Keep up the good work" were used to express praise and encouragement. The following is a description of the assertion training program used.

Introduction to assertion training. S was told specifically what was going to happen during assertion training and why; he was also told that this program had been successful in the past with cases similar to his. Two central points were emphasized: (a) everyone

has the right to ask for what he wants and the right to refuse what he does not want, (b) assertion and aggression must be clearly differentiated. Assertion is the right to ask and right to refuse, aggression involves the violation of another person's rights and usually involves advantage being taken of another without the latter's consent, even against his desires or best interests.

Review of life situation. Ss were asked to record assertion problems having to do with members of the opposite sex; they were also asked to record situations where they behaved assertively with girls. In describing assertion problems or successes each S was asked to answer five questions: (a) what happened, (b) with whom, (c) when, (d) where, and (e) personal perception of how things went.

Role playing life situations. When S felt comfortable role playing structured situations, he chose situations with girls he had recorded earlier. The situations causing minimal discomfort were chosen first, more difficult situations were practiced as tolerance developed.

Playing the role in the world (mini exercises). Mini exercises were similar to the structured "canned" situations except that they were homework assignments. The assignments were carried out in the real-life environment. The task was role played with the E first and was not a regular problem in the S life situation.

Probability of success was an important consideration in deciding which task to assign. The results of each exercise was reviewed in the next session. If S had not succeeded the E either found an easier exercise or role played the assigned one again until both the E and the S felt it could be accomplished successfully.

Real life adoption of assertive role. When the S felt he was ready to try assertive behavior in a difficult real life situation, his strategy and goals were examined by the E. Goal clarity and simplicity were emphasized. This phase of assertion training usually occurred during the later phases of aversive conditioning.

Outcome Measures

Outcome was defined in terms of the following measures: (a) Pre-post rating of male and female therapy VCS; (b) Pleythysmographic measure of VCS impact; and (c) Self-report questionnaire responses assessing subjective evaluation of current sexual disposition.

Pre-Post Rating of Male and Female Therapy VCS

Male therapy VCS were randomly selected by E from a series of slides that had been prepared by several homosexuals who had been previously treated by Dr. D. Eugene Thorne. Female therapy VCS were chosen randomly from women's fashion magazines and

Playboy-like magazines. Male and female therapy VCS were randomly arranged, they were not hierarchly scheduled (Thorne, 1968).

Therapy VCS was rated on a scale from 1 to 9. A rating of 1 signified sexual repulsion, 5 signified sexual neutrality, and 9 high sexual interest. Each slide was viewed until S was able to reliably rate it.

Pleythysmographic Measure of VCS Impact

A phallometric test using a pleythysmographic mercury-in-rubber-strain-gauge was used to assess physiological arousal to (visually projected) male and female slides before and after treatment. The apparatus used was patterned after Bancroft et al. (1966).

Changes in penile volume were measured in mm increase in diameter of the penis. The measure used was the largest increase in penile circumference that occurred during the first 10 minute period following presentation of the first standard VCS. A reading of 25 mm represented a full erection (Bancroft, 1970). An arbitrary cut-off point between erotic and non-erotic was between 0.4 and 0.6 mm (Bancroft & Staples, 1974).

Male and female nude VCS were chosen randomly by the E from a series of pictures taken from recent Playboy/Playgirl-like magazines. Clothed stimuli were chosen from several popular women's

and men's fashion magazines. These pictures were then made up into 35 mm slides. The slides were simple poses; there were no overt sexual activities portrayed or implied in any of the slides.

Self-Report Questionnaire
(Sexual Behavior Inventory,
See Appendix B)

This measure is a modification of a life history questionnaire developed by Lazarus (1973) and sexual disposition questionnaire used by Birk et al. (1971). The Sexual Behavior Inventory was developed to assess change in sexual disposition and provide pertinent biographical information such as attitudes toward parents and developmental history regarding sexual orientation. The portion of the questionnaire that dealt specifically with sexual functioning was used to assess current sexual disposition. It comprised ten incomplete sentences that inquired about homosexual and heterosexual fantasy activity, overt sexual activities and cognitive appraisal of current sexual functioning. Under each of the ten questions was a series of thirty dots, the S was instructed to check the area of the dotted line that best described the way he would complete each question. In determining the numerical score of each statement, a template was placed over the continum of dots, questions were scored on a scale from 1 to 9. Numbers 1 through 4 were within the heterosexual range; 5 represented bisexual involvement and 6 through 9 homosexual interests. Each question was allotted a numerical score

between 1 and 9, the total possible score was 90. A score between 80 and 90 indicated extreme homosexual interests with overt involvement. A score of 10 would denote extreme heterosexual interests and involvement. Because of the nature of the test, a score less than 10 or more than 90 was not possible.

The reliability of the "Current Sexual Functioning" portion of the questionnaire was determined by correlating the odd and even items and using a Spearman-Brown correction formula (Ferguson, 1966). A reliability coefficient of .78 was derived. Since this portion of the questionnaire was short (10 items) and a reliability coefficient of this nature can be expected to increase as length of the questionnaire increased it was felt that the inventory could be accepted as having sufficient internal consistency.

Design

Rating of male and female therapy VCS and self-report sexual orientation scores were submitted to a two factor analysis of variance for repeated measures; a split-plot design was used (Edwards, 1972). Both measures, rating of male and female therapy VCS and sexual orientation scores, were repeated across subjects. Or in other words, these measures were administered to all Ss before treatment commenced and after treatment was terminated. The reason a two factor analysis of variance for repeated measures, split-plot design was used was to determine significance of therapy, treatment and

interaction effects across measures. In the split-plot design used in this study there was one within factor and one between factor. The within factor was the therapy effect, i.e., comparison of pre- and posttreatment rating of male and female therapy VCS and comparison of pre- and posttreatment sexual orientation scores. The between factor was the treatment effect, i.e., comparison of pre-treatment ratings by both N and C-groups of male and female therapy VCS and pretreatment comparison of sexual orientation scores by both treatment groups.

A non-parametric test, the Mann-Whitney U test (Siegel, 1956) was used to assess significance of pleythysmographic measures. The Mann-Whitney U test was used because the pleythysmographic data did not meet the assumptions of a two factor analysis of variance.

Analysis of separate pre-posttreatment means for rating of male and female therapy VCS was done using the Student t test for significance of difference between means (Edwards, 1972). This test was used to determine whether there was a significance between groups in their pre- and posttreatment ratings of male and female therapy VCS.

Pre assessment occurred one week prior to the first treatment session and the posttreatment assessment was administered two weeks following the last treatment session.

At the conclusion of treatment, Ss were shown their (a) pre and posttreatment pleythysmographic recordings, (b) therapy VCS ratings, and (c) sexual orientation scores. Impressions of treatment procedure and personal outcome data were discussed. Ss did not know that scores would be discussed with them prior to or during treatment.

Apparatus

During the aversive conditioning phase of treatment Ss sat in a padded reclining armchair. Ten feet in front of the S was a ground-glass screen, 4 feet by 5 feet, center of the screen was at eye level. Slides used during treatment were projected on the screen by a Kodak Carousel 35 mm slide projector.

Electromechanical programming equipment was used to control experimental events. The equipment was programmed to perform three schedules (a) Conditioned Emotional Response (CER), Event I, escape from shock whenever plunger (i.e. the escape/avoidance response) was depressed and Event II, escape from shock only when plunger was held down; (b) Fixed Ratio (FR), escape from shock when plunger was hit three times; (c) Variable Ratio (VR), escape from shock after hitting plunger a variable number of times.

The maximum shock output was 1600 volts. The shape of the shock was a spike and lasted for .1 ms. The shock was powered by a Variable D-C Power supply, set at 60 volts. The power from the

D-C supply went to an oscillation and then to a step-up transformer to the S.

The aversive conditioning apparatus consisted of three systems that were interconnected; (a) two Kodak Carousel 35 mm slide projectors; (b) shocking system, and (c) a control system. Only one projector produced a picture at a time, all 35 mm slides in projector 1 were male slides and all slides in projector 2 were female slides. Projector 1 was turned off and projector 2 was turned on when the plunger was depressed a given number of times depending on the schedule (CER, FR or VR). Both projectors were advanced together after 15 seconds regardless of how many times the plunger was depressed.

The shocker only operated when projector 1 was on. Shock was regulated by a control system that was turned off when the S depressed the plunger.

The control system was composed of electromechanical and solid state controls, made by Lehigh Valley Electronics and Ralph Gerbrands, Inc. It had been programmed so that every 15 seconds a new slide would be available no matter which schedule (CER, FR, VR) was operating. Also, no shock was administered for the first 5 seconds of the 15 second cycle. When the plunger was depressed according to schedule (CER, FR, VR) the control system changed projectors and discontinued the shock until the next cycle.

There were three switches on the control panel that determined which schedule (CER, FR, VR) would be operating. When the switch was in CER, Event I position; depressing the plunger would cause projectors to change and shock to stop, when the plunger was released the projector changed back and the shock started. This was accomplished by connecting output of plunger to the operation of the relay that controled shock, and the relay that controlledthe changing of the projectors.

When the switch was in the CER, Event II position and the plunger was depressed it set a flip-flop switch which operated the relay that changed slides and reset a second flip-flop switch that controlled the pulse generator for shock. The FR switch put output from the plunger to a predetermining counter which was set at 3. After hitting the plunger three times the predetermining counter gave an output that did the same as CER, Event II.

The VR schedule was operated by the use of a Ralph Gerbrands variable interval tape reader. If the plunger was depressed when tape reader was in the output stage the system would perform the same way as CER, Event II. If the tape reader was not in the output stage, depressing the plunger would have no effect.

CHAPTER 4

RESULTS

Both treatment groups were compared on five dependent measures, rating of (a) male and (b) female therapy VCS, measured by a subjective evaluation of male and female VCS which were used as part of the treatment procedure; pleythysmograph impact, measured by penile volume change to (c) male and (d) female stimuli (standard VCS) which were not used in treatment; and (e) sexual orientation, measured by self-report questionnaire assessing current sexual disposition before and after treatment. These five measures were obtained from each S for the purpose of statistically evaluating therapeutic change.

A two factor repeated measures analysis of variance was conducted on three of the dependent measures: (a) rating of male therapy VCS, (b) rating of female therapy VCS, and (c) sexual orientation scores. The purpose of this statistical test was to determine significance of therapy, treatment and interaction effects across these measures. The Mann-Whitney U test was used to determine significance between treatment groups on the pleythysmographic measure. Separate treatment mean scores were analyzed

using a Student t test to differentiate group performance on pre and posttreatment rating of male and female therapy VCS.

Male Therapy VCS Rating

There was no significant difference between groups on pretreatment evaluation of male 35 mm slides used during treatment (therapy VCS). The mean scores for N-group and C-group were 205.6 and 197.4 respectively. This finding indicates that clothed and nude male therapy VCS were rated equally attractive by both groups in their initial evaluation of the therapy slides.

Posttreatment evaluation of male therapy VCS showed that N-group rated their slides significantly less attractive than did C-group, ($t = 1.748$, $p < .10$). See Table 1. The posttreatment measures were 99.4 for N-group and 136.4 for C-group suggesting that ratings of male therapy VCS had decreased more for Ss using nude slides (VCS) of males than for Ss using clothed slides (VCS) of males.

Even though posttreatment differences were significant between groups the decline in rating of the male therapy VCS was significant for both groups which suggests that aversive treatment effectively decreased ratings to nude and clothed male VCS. As seen in Table 2, this is substantiated by the significant pre and post differences for both the N-group, ($t = 5.787$, $p < .001$) and C-group ($t = 2.861$, $p < .05$).

Table 1

Means and Standard Deviations of Nude and Clothed Male Therapy VCS and t Test Showing Significant Pre and Post Differences Between Groups

Treatment Condition	N-Group		C-Group		t
	M	SD	M	SD	
Pretreatment	205.6	34.27	197.4	35.4	--
Posttreatment	99.4	34.36	136.4	44.2	1.748

Table 2

Means and Standard Deviations of Male and Female Therapy VCS and t Test Showing Significant Pre and Post Differences

Measure	Pretreatment		Posttreatment		t
	M	SD	M	SD	
Nude Male Therapy VCS Rating	205.6	34.27	99.4	34.36	5.787
Clothed Male Therapy VSC Rating	197.4	35.04	136.4	44.20	2.861
Nude Female Therapy VCS Rating	85.7	28.45	201.0	36.79	10.27
Clothed Female Therapy VCS Rating	154.8	44.46	246.1	31.25	5.063

Comparing results from both groups using a two factor analysis of variance, showed a significant interaction effect, ($F = 7.42$, $p < .05$), see Table 3. This finding indicates that by using nude therapy VCS in treatment, N-group rated nude male VCS as less arousing as compared to C-group's rating of clothed male therapy VCS. Or in other words, this result suggests that the use of nude male stimuli in treatment is more effective in reducing ratings to male therapy VCS. There was also a highly significant therapy effect, ($F = 73.93$, $p < .001$) showing that both groups rated male therapy VCS as significantly less arousing at the conclusion of treatment (see Table 3). Pre and posttreatment mean scores across both groups were 201.5 and 112.2, respectively, which again supports the finding that aversive treatment was effective in decreasing S ratings of therapy VCS.

Female Therapy VCS Rating

C-group pretreatment evaluation of clothed female therapy VCS was rated significantly higher than N-group's rating of nude female therapy VCS ($t = 3.47$, $p < .005$) (see Table 4). The mean score rating by N-group was 85.7 and the C-group mean score was 154.8, a score of 300 was maximum. This finding suggests that nude female stimuli were rated as less attractive sexually than clothed female stimuli before treatment. Posttreatment evaluation showed the same trend, C-group rated the clothed female therapy VCS as

Table 3

Analysis of Variance Table Showing Pre and Posttreatment Effects of Male Therapy VCS Rating for Both Groups

Source	df	MS	F
Between Subject Treatment Effect	1	2840.1	1.79
Between Subject Error	12	1582.9	--
Within Subject Therapy Effect	1	55804	73.93**
Treatment X Therapy (Interaction)	1	5600.6	7.42*
Within Subject Error	12	754.82	

*p .05
**p .001

Table 4

Means and Standard Deviations of Nude and Clothed Female Therapy VCS and t Test Showing Significant Pre and Post Differences Between Groups

Treatment Condition	N-Group		C-Group		t
	M	SD	M	SD	
Pretreatment	85.7	28.45	154.8	44.46	3.47
Posttreatment	201	36.79	246.1	31.25	2.47

significantly more attractive than N-group's rating of nude female therapy VCS, ($t = 2.47$, $p < .05$). The posttreatment measures were 201 for N-group and 246 for C-group (see Table 4). Overall (pre and posttreatment) ratings of female therapy VCS were more positive for clothed female VCS than nude female VCS.

As observed in Table 2, pre-posttreatment differences for both groups were significant, N-group ($t = 10.27$, $p < .001$) and C-group, ($t = 5.063$, $p < .002$) indicating that at the conclusion of treatment each group rated the female therapy VCS as significantly more sexually attractive. In support of the significant pre-posttreatment differences, there was a significant therapy effect ($F = 22.74$, $p < .001$), also indicating that both treatment groups rated female therapy VCS as significantly more attractive at the end of treatment (see Table 5). Pretreatment mean rating across both groups was 120.5 and the mean posttreatment rating was 223.5.

Male Standard VCS, Pleythysmographic Measure

Pretreatment penile volume change to the male standard VCS as measured by the penile pleythysmograph was not significantly different between groups indicating that male standard VCS were equally arousing to both groups before treatment. This finding further supports the non-significant difference between groups on the

pretreatment male therapy VCS rating, showing that both groups were comparable in their pretreatment subjective and physiological "arousal" or attraction to male VCS.

Table 5

Analysis of Variance Table Showing Pre and Posttreatment Effects of Female Therapy VCS Rating for Both Groups

Source	df	MS	F
Between Subject Treatment Effect	1	3003.6	1
Between Subject Error	12	3748.5	
Within Subject Therapy Effect	1	25441.0	22.74**
Treatment X Therapy	1	3344.1	2.99
Within Subject Error	12	1118.6	

**p .001

At posttreatment, N-group exhibited significantly less physiological arousal to the male standard VCS than did C-group ($p < .006$). This finding suggests that there was a significant difference between groups in their posttreatment reaction to male standard VCS suggesting that greater impact of aversive treatment occurs with Ss using nude VCS. This data supports the proposition

that the use of nude male VCS facilitates the objectives of aversive treatment as reflected by the present study's design and results.

Female Standard VCS, Pleythysmographic Measure

Pretreatment "arousal" to female standard VCS was significantly different between groups, ($p < .006$). N-group experienced significantly less "arousal" than did C-group suggesting that by chance Ss assigned to be treated using nude VCS were less physiologically responsive to female standard VCS.

Both groups exhibited significantly greater posttreatment physiological "arousal" to the female standard VCS. The level of significance was $p < .001$ for N-group and $p < .001$ for C-group suggesting that Behavior Therapy was effective in increasing Ss arousal to female standard VCS. The posttreatment mean arousal scores for N and C-groups were 19.5/mm and 24.8/mm respectively which were not significantly different. Even though posttreatment "arousal" to female standard VCS significantly improved for both groups, it appears that N-group responded with less "arousal" for female standard VCS before and after treatment.

In comparing (see Figure 1) the pre and posttreatment scores for the male and female standard VCS across both treatment groups, pretreatment penile erection to these stimuli were reversed. Pretreatment penile erection averaged 22/mm to male standard VCS

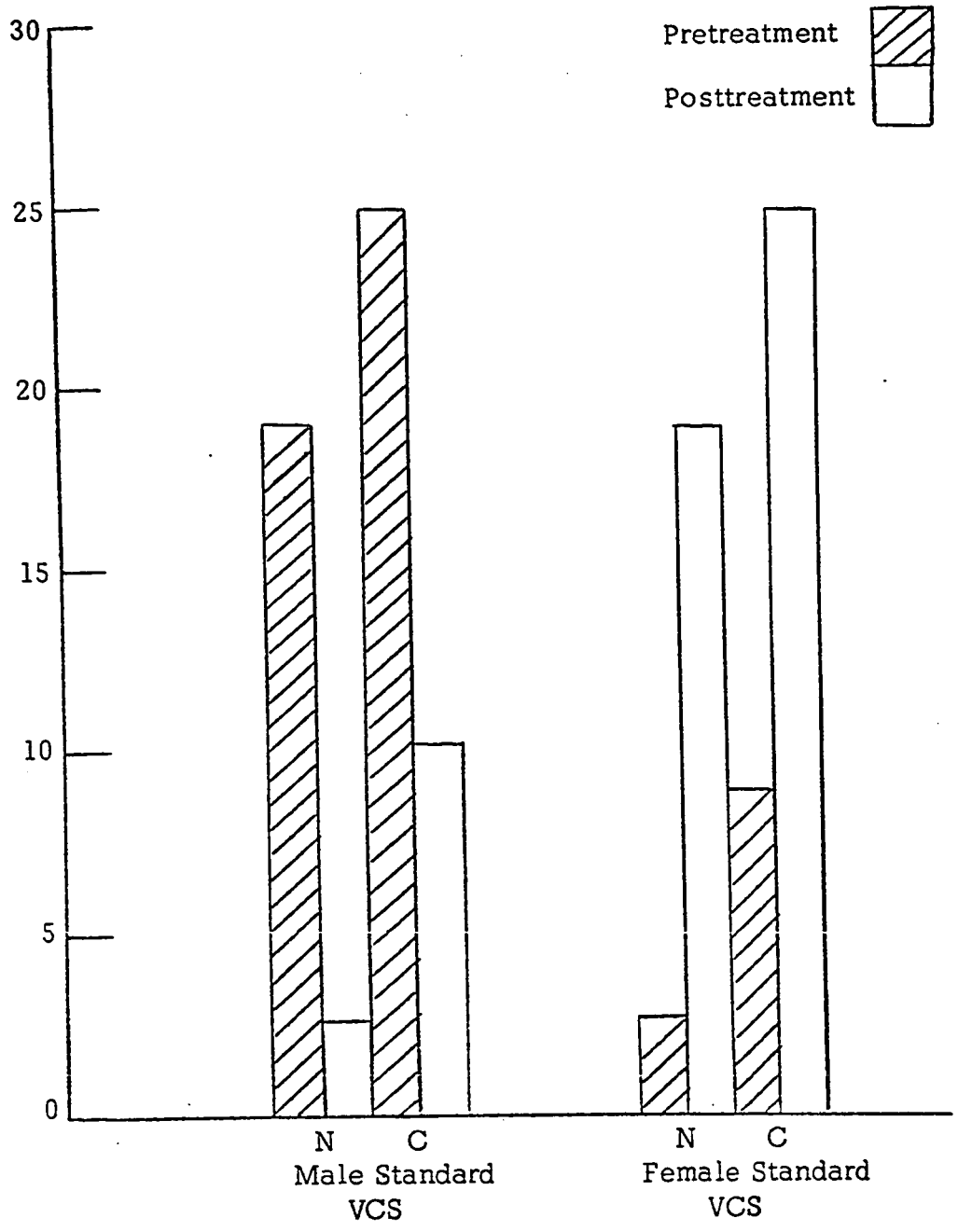

Fig. 1. Pre and Posttreatment Comparison Between N-Group (N) and C-Group (C) of Male and Female Standard VCS.

and 5.2/mm to female standard VCS. Posttreatment penile erection averaged 6.6/mm to male standard VCS and averaged 22.2/mm to female standard VCS. A reading of 25/mm represented a full erection.

Sexual Orientation, Before and After Treatment

No significant differences were manifest between treatment groups in pretreatment evaluation of current sexual orientation. This finding shows that both groups evaluated themselves at the same level of homosexual orientation. Differences between the two mean scores was 1.2; N-group's mean score was 66.1, and C-group's mean score was 67.3. Neither was there a significant difference between groups in their posttreatment sexual orientation evaluation. However, both groups subjectively evaluated themselves as more heterosexual than homosexual at the conclusion of treatment. Posttreatment improvement of subjective evaluations of sexual functioning supported the improved posttreatment therapy VCS ratings and standard VCS pleythysmographic measures: That is, all measures showed significant positive therapeutic effect.

Analysis of differences between groups on the sexual orientation measure indicated a highly significant therapy effect only ($F = 17.54$, $p < .001$), showing that at the conclusion of treatment, both treatment groups evaluated themselves as significantly less homosexual than heterosexual (see Table 6). This finding suggests

that the type of Behavior Therapy used in the present study was highly effective in changing subjective evaluation of sexual orientation, as measured two weeks subsequent to treatment termination.

Table 6

Analysis of Variance Table Showing Pre and Posttreatment Effects of Sexual Orientation Rating for Both Groups

Source	df	MS	F
Between Subject Treatment Effect	1	87.75	1.0
Between Subject Error	12		
Within Subject Therapy Effect	1	1022.0	17.54**
Treatment X Therapy	1	38.89	1.0
Within Subject Error	12	58.24	

**p .001

CHAPTER 5

DISCUSSION

In the treatment of male homosexuality, the utilization of nude male and female pictures or visual cue stimuli (VCS) has been an integral procedural component of Behavior therapy incorporating aversive conditioning. However, ethical considerations, community standards and adherance to institutional regulations might demand that the use of such stimuli in therapy be experimentally supported. The primary question examined in this study was whether the type of male or female 35 mm slides (therapy VCS) utilized can significantly affect therapeutic outcome.

Analysis of Male Therapy and Male Standard VCS

In the pretreatment rating of male therapy VCS it is worth noting the lack of significant difference in overall rating of clothed versus nude male VCS. Our data did not support the popular notion that the male homosexual is more positively attracted to nude stimuli as opposed to clothed. The present study's results indicate that homosexual attraction to members of the same sex is more general and not restricted to male nudity. Obviously, however, more

definitive research is needed to assess homosexual reaction to nude and clothed male stimuli and measure the influence of individual differences in the rating process. Demand characteristics of the situation (Orne, 1962) should also be considered as a determining factor in the rating of the male therapy VCS. Perhaps the participants felt that because they were being treated for homosexuality the male therapy slides should be rated as sexually attractive. Unfortunately, this variable is difficult to control in outcome research (Bergin, 1966).

Pretreatment analysis of S's physiological reaction to a set of 30 male slides (male standard VCS) showed no significant difference between groups. This finding indicates that pretreatment physiological arousal to male stimuli was similar for each group. Lack of difference could be attributed to the variety of the male standard VCS (male standard VCS were composed of nude, semi-nude and clothed adolescent and adult males in various poses). It appears because the compilation of the standard VCS slides was diverse, it was not difficult for S to attend to or identify with some of the slide material and sustain an erection.

In contrast to the pretreatment measures just discussed, the posttreatment ratings of male therapy VCS and pleythysmographic reaction to male standard VCS were significantly different between groups. It should be pointed out, however, that both groups were

significantly less aroused to the male stimuli at the conclusion of treatment. Aversion therapy is only a part, but an integral part of the present study's treatment, but our results support Hallman and Rachman's (1972) finding that homosexuals who complete aversive conditioning reported a decrease in interest or "total" indifference to male stimuli. It has also been demonstrated that Ss who successfully complete aversive conditioning regard themselves as more heterosexual than homosexual (Feldman & MacCulloch, 1965, 1971). N-group rated the nude male therapy VCS used in treatment as less attractive and penile volume change was also significantly less than identical measures for C-group. A possible explanation for the posttreatment difference in rating of male therapy VCS is that nude male stimuli were considered inherently more sexually oriented than clothed stimuli by Ss who had successfully undergone therapy. If this rational is correct, it would help explain why the nude therapy slides were rated as less arousing than the clothed male slides after treatment.

The significantly greater sexual responsiveness at the conclusion of treatment to the male standard VCS by C-group is more difficult to interpret, but it could be due to the nature of the VCS used in treatment. Indications are that compared to nude male therapy VCS the utilization of clothed male therapy VCS, though therapeutically effective, is not as effective in diminishing homosexual

arousal. Perhaps conditioned aversion to clothed therapy VCS did not generalize as well to the male standard VCS because of inadequate sensitization to nude male stimuli during the treatment phase. The implication of this finding is that therapeutic utilization of nude male therapy VCS appears to achieve a more complete aversion to male stimuli. Research indicates that the degree of posttreatment arousal to male stimuli is an important criterion in determining extent of remediation (Bancroft, 1971; Feldman & MacCulloch, 1971).

Analysis of Female Therapy and Female Standard VCS

There were significant differences between groups in pretreatment rating of female therapy VCS and pleythysmographic reaction to female standard VCS. Before treatment, N-group rated the nude female therapy VCS as less arousing as compared to C-group ratings of clothed female therapy VCS. Pleythysmographic measures showed the same trend. These findings are not surprising in that Bieber et al. (1962) found that the exposed female genitalia (e.g., breasts, buttocks, pubic areas, etc.) can be threatening and unattractive to the male homosexual. For example, in their survey they found that 70 percent of the 106 Ss interviewed reported fear and aversion to the female vagina. Bieber et al.'s data is supported by Freund, Langevin and Cibiri (1973). Freund et al. reported that homosexuals react negatively to nude slides of the non-preferred sex

on attitudinal and penile response measures. In light of these findings, the initial use of nude female stimuli might be discouraged because the S is likely to be initially more anxious in the presence of such stimuli. If treatment is successful, such reactions toward heterosexually appropriate stimuli would be reversed.

Recent investigations suggest that arousal during treatment is a necessary component of aversive conditioning (Bancroft, 1970; Barlow, 1974). In support of this finding, Evans (1968) found that arousability promotes fantasy activity. An important consideration therefore is whether the female therapy VCS used in treatment is sufficiently arousing to facilitate appropriate fantasy activity. Whether conditioning can occur more effectively with facilitated fantasy is a question that warrants additional research. Nevertheless, to facilitate arousal and concomitant fantasy it is suggested that in the initial phases of treatment clothed female therapy VCS be used, and as arousal and ability to fantasize increases, other more heterosexually appropriate stimuli be introduced.

Feldman and MacCulloch (1965, 1971), Birk, Huddleston, and Miller (1971), and Thorne (1968) suggest that the homosexual choose his therapy VCS, male and female. However, Feldman and MacCulloch (1971) point out that it is difficult for the male homosexual to exercise objectivity in choosing sexually arousing female stimuli. A question that requires further investigation is whether

degree of arousal is more reinforcing and probable if the female pictures are not intially the choice of the subject.

Comparative posttreatment physiological arousal to female standard VCS showed no significant difference between groups. However, there was a significant difference between groups in rating of female therapy VCS used in treatment. At the conclusion of treatment, C-group rated the clothed female therapy VCS as significantly more attractive than N-group's rating of nude female therapy VCS. In support of the previous suggestion regarding the initial use of clothed female therapy VCS, this finding also indicates that the utilization of clothed female therapy VCS should not be an arbitrary choice. The initial use of clothed female therapy VCS tends to encourage appropriate fantasy involvement and therefore enhances probability of successful outcome.

Physiological reaction by both groups to female standard VCS changed significantly indicating increased arousal to female stimuli. This variable is an important indicator of change because it can be assumed that penile volume increase to pictures of nude and clothed females is associated with heterosexual feelings (Freund, 1963; McConaghy, 1967). The acquisition of heterosexual feelings facilitates the resolution of inappropriate anxiety and repulsion toward members of the opposite sex, and also help develop emotional attraction towards normal male-female encounters.

Analysis of Sexual Orientation, Before and After Treatment

Subjective self-rating of sexual orientation prior to treatment indicated that both groups regarded themselves as more homosexual than heterosexual. This trend was supported by the other pretreatment measures in that male therapy VCS and standard VCS were evaluated as more sexually arousing than female therapy and standard VCS.

Increased heterosexual feelings and behavior was substantiated with Ss' subjective evaluation of posttreatment functioning. Both groups rated themselves as improved overall. The Ss' cognitive appraisal of "where they are sexually" was substantiated by the other dependent measures. Improvement was defined as change toward heterosexual adjustment. On a continuum, all Ss rated themselves as improved, it is important to note that no S rated himself as unimproved or "more homosexual." It can be surmised that immediate short range goals of treatment were achieved for both groups.

In conclusion, analysis of the data showed significant pre-post differences for both treatment groups on the five dependent measures indicating that Behavior therapy incorporating aversive conditioning for male homosexuals can be effective with either nude or clothed therapy VCS. However, the primary question being examined is which type of therapy VCS utilized is more effective in

achieving therapeutic objectives. Results do not fully support the hypothesis that exclusive use of either type (clothed or nude) of therapy VCS is a necessary requisite in achieving therapeutic change in the treatment of male homosexuality using Behavior therapy which incorporates an aversive conditioning paradigm. Notwithstanding, it was demonstrated that type of therapy VCS did affect outcome. There were two significant findings: (a) Support was found for the use of nude male therapy VCS. It was significantly demonstrated that the use of nude therapy VCS facilitates diminution of sexual responsiveness to male VCS. (b) It was also found that initial use of nude female therapy VCS can be potentially threatening to the S and therefore may interfere with appropriate fantasy activity during treatment. These findings do not suggest that the use of clothed male or nude female therapy VCS would not be therapeutically effective but that nude male and clothed female therapy VCS appear to promote more complete and effective decrease in homosexual arousal. Most behavior therapists contend that an important component of a therapeutic intervention program is not solely to meet therapeutic objectives, but to achieve a positive outcome in the most expeditious and complete way (Lazarus, 1971), while at the same time utilizing techniques that are consistent with community standards, or, if inconsistent, that the techniques are grounded in experimentally demonstrated principles.

Empirical support for the use of specific VCS will enable the behavior therapist to be more precise in the development of an effective program for the treatment of male homosexuality. Because the therapist will have a scientific rational for utilizing nude stimuli it will help resolve the moral and ethical question regarding the use of potentially "offensive" material. Such considerations should be particularly important at religious and privately endowed institutions where the use of nude VCS has been challenged on the grounds that it is offensive and not therapeutically warranted.

CHAPTER 6

SUMMARY AND CONCLUSIONS

The primary objective of this study has been to investigate treatment variables used in Behavior therapy which includes aversive conditioning; specifically to determine whether use of nude male and female 35 mm slides (therapy VCS) are a necessary requisite for successful remediation of male homosexuality. Two experimental groups of seven Ss each received treatment for male homosexuality. Treatment incorporated aversive conditioning concomitantly with assertive training as developed and described by Thorne (1968), e.g. Electrical Aversion Therapy--EAT. Assertive training was employed to help facilitate heterosexual role involvement. Treatment differed between groups only in terms of the nature of the male and female therapy VCS used in the aversive conditioning phase of treatment. The first experimental group was exposed to nude female and male therapy VCS and the second experimental group was exposed to clothed male and female therapy VCS. Outcome measures included (a) subjective rating of male and female therapy VCS, and (b) pleythysmograph impact measured by penile volume change to a standard set of male and female slides that were seen by both groups and not

used in treatment. A third measure was a self-report questionnaire that measured sexual orientation before and after treatment.

Following is an enumeration of the implications of the study and appropriate recommendations:

1. It can be assumed that Behavior therapy involving aversive conditioning, specifically Thorne's (1968) EAT procedure, is an effective treatment for male homosexuality. Tanner (1973a) concurs in his appraisal of aversive conditioning as the preferred mode of treatment for sexual inversion. "There is more evidence of its effectiveness in modifying homosexual behavior than there is of any other mode of treatment." It is important that additional research be done to refine Behavior therapies incorporating aversive conditioning procedures and thereby continue to identify variables that contribute to treatment effect.

2. The type of visual cue stimulus (VCS) used in aversive treatment can significantly affect treatment outcome. It was found that the use of nude male <u>therapy</u> VCS was more effective in diminishing sexual responsiveness to male VCS. Why nude male stimuli is more effective in diminishing homosexual arousal needs further analysis. It was also found that the initial use of nude female <u>therapy</u> VCS may inhibit fantasy activity during treatment, and thereby reduce or limit overall heterosexual adjustment. Due to the initial negative reaction to nude female <u>therapy</u> VCS and effect on

outcome a question that warrants additional research is whether audio feedback of female voices or written descriptions of female poses would be a more effective conditioned stimulus.

3. Homosexual attraction to the same sex is more general and not restricted to nude male stimuli. Results showed that both experimental groups rated their respective male therapy VCS as equally arousing before treatment. Research is needed to assess the effect of individual differences in pretreatment arousal to male stimuli; specifically, is the overt (sexually active) homosexual more attracted to nude stimuli as opposed to clothed. A second question that needs to be looked at is whether prognosis for remediation is more positive for those who exhibit less pretreatment arousal to male stimuli.

4. The present study was restricted to visual stimuli only. Additional research is needed to derive information about other types of CS: namely, mental imagery, overt deviant acts and external stimuli audio feedback and written descriptions.

All outcome research is hampered by unforeseen limitations that usually develop into criticisms of the study. Following is an enumeration of the limitations or probable criticisms encountered in the present study:

1. Small sample size. An unfortunate limitation of the study was its small sample size. Difficulty procurring appropriate

referrals was the contributing factor. There were too few Ss referred by various agencies. Obviously, the major consequence of a small sample size is difficulty formulating generalizations and substantiation of outcome data. Fortunately, the dropout rate was low, all but three Ss completed treatment.

2. Lack of short and long term follow-up. Follow-up is an integral facet of outcome research. Unfortunately, deadline problems pre-empted the possibility of including a follow-up in this phase of the study. However, we have planned a follow-up which will be carried out at six and twelve month intervals, and after data is compiled and interpreted it will be added to past data and prepared for publication.

3. No independent judge. Pre and post measures were not administered or interpreted by an independent judge thus introducing the possibility of experimental bias. Because a subjective evaluation was not the primary criterion of therapeutic change an independent judge did not seem critical or necessary. Confidentiality and other practical reasons were also considerations.

4. Absence of a no-treatment control group. The primary reason a control group was not included is that not enough Ss were available. The difficulty getting the number of treatment Ss made a control group unfeasible. There is also a question whether a control group is in fact free from "other" therapeutic interventions.

Bergin (1966) emphasized that it is tenuous to stipulate that no intervention has taken place with a no-treatment control group.

5. Representativeness of sample. There is a question as to whether the sample used is representative of the typical male homosexual population. This was difficult to control given that the pool of possible candidates for treatment was geographically, educationally and religiously similar.

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APPENDIX A

WITNESSED STATEMENT OF CONSENT AND AUTHORIZATION TO PERFORM EXPLAINED TREATMENT PROCEDURES

I, _____, witness the fact that I have had explained to me all of the various ramifications of experimental aversion techniques used to countercondition inappropriate emotional propensities, like those of my own. I fully realize that these procedures are experimental in nature of their design and application, and that their application to me will likely produce a great deal of discomfort; and that, perhaps, tissue or organ damage could result. Nevertheless, I agree to allow Dr. D. Eugene Thorne and his clinical associates to administer these experimental aversive techniques to me in any way that in their judgment would seem appropriate to therapeutic objectives.

I also witness the fact that the visual, auditory, and other sensory modality stimuli used to countercondition my inappropriate emotional propensities have been either provided by me or I have agreed to use them as directed by Dr. D. Eugene Thorne and his clinical associates. Some of these materials could be construed to be socially or morally offensive.

Finally, I release Dr. D. Eugene Thorne and his clinical associates from all legal liabilities that could result from treatment provided me from them, and from any communication of my case materials to other clinically oriented individuals.

Date: _____ Signature: _____

Date: _____ Witness: _____

APPENDIX B

SEXUAL BEHAVIOR INVENTORY

THIS QUESTIONNAIRE IS CONFIDENTIAL--FOR RESEARCH PURPOSES ONLY

Name: _____ Date: _____

Address: _____ City: _____ State: _____

Telephone Numbers: home _____ business _____

Age: _____ Occupation: _____

Date of Birth: _____ Place of Birth: _____

Religion: _____

Marital Status: (Circle answer)

Single; Engaged; Married; Remarried; Separated; Divorced; Widowed

How long have you been married?: _____

Husband's/wife's age: _____ Occupation of husband or wife: _____

How much schooling have you had?: (Circle answer)

Grade school (up to the sixth grade); Junior high (7th thru 9th); High school (did not graduate); High school (graduated); College (did not graduate; College (graduated)

Have you ever received counseling or psychotherapy before?: _____

If yes, when and for what reason:

Is your father living or deceased? _____

If deceased, your age at the time of his death: _____

Cause of death: _____

If alive, father's present age: ____ Occupation: _____

Health: _____

Is your mother living or deceased? _____

If deceased, your age at the time of her death: _____

Cause of death: _____

If alive, mother's present age: ____ Occupation: _____

Health: _____

How many brothers do you have? _____ Their ages _____

How many sisters do you have? _____ Their ages _____

Give a description of your father's personality and his attitude toward you (past and present).

Give a description of your mother's personality and her attitude toward you (past and present).

What were your parents attitudes toward sex? Was there instruction or discussion about sex in the home?

When and how did you get your first knowledge about sex?

When did you first become aware of your sex impulses?

Did you ever experience any anxieties or guilt feelings arising out of sex or masturbation? If yes please explain.

Is your present sex life satisfactory?

Underline any of the following that applied during your childhood:

Night terrors	Bed-wetting	Sleepwalking
Thumb-sucking	Nail-biting	Stammering
Fears	Happy childhood	Unhappy childhood

Any other:

CURRENT SEXUAL FUNCTIONING

Mark with a check the area of the dotted line that best describes the way you would complete the following statements:

1. Thinking of engaging in homosexual activities causes:

no arousal	moderate arousal	great arousal

2. Sexual activities involving individuals of the opposite sex causes:

great arousal	moderate arousal	no arousal

3. I consider myself:

totally heterosexual	both homosexual and heterosexual	totally homosexual

4. Sexual activities with members of the opposite sex:

frequent occur	occur sometimes	never occur

5. Brief homosexual experiences:

never occur	occur sometimes	occur frequently

6. Overt (active) homosexual experiences:

never occur	occur sometimes	occur frequently

7. Most of my sexual fantasies have to do with members of the opposite sex:

always	sometimes	never

8. My sexual fantasies are predominantly:

heterosexual	homosexual and heterosexual	homosexual

9. I have felt sexually attracted to members of my own sex:

never	occasionally	most of the time

10. My active sexual experiences are:

exclusively heterosexual	homosexual and heterosexual	exclusively homosexual

EFFECT OF VISUAL STIMULI IN ELECTRIC AVERSION THERAPY

Max Ford McBride

Department of Psychology

Ph.D. Degree, August 1976

ABSTRACT

Two experimental groups of seven subjects each received Behavior therapy for male homosexuality which incorporated aversive conditioning and assertion training. The intent of the study was to determine whether use of nude male and female pictures are a necessary requisite for successful treatment. Indices of change included subjective rating of male and female slides used in treatment, pleythysmographic impact measured by penile volume change to a standard set of male and female slides not used in treatment, and a self-report questionnaire that measured sexual orientation.

Results showed that treatment was effective in reducing homosexual responsiveness. It was found that nude male pictures used in treatment were more effective in diminishing sexual responsiveness to male stimuli. It was also found that the initial use of nude female pictures may inhibit fantasy activity during treatment.

COMMITTEE APPROVAL:

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