ANGER REDUCTION IN CLOSED HEAD INJURED INDIVIDUALS
WITH GROUP SOCIAL SKILLS TRAINING

DISSERTATION

Presented to the Graduate Council of the
North Texas State University in Partial
Fulfillment of the Requirements

For the degree of

Doctor of Philosophy

By

Myrna K. Nicolette, M.A.
Denton, Texas
May, 1990

In the present study, an anger management treatment program was compared to a pseudo-social skills training program (self-help group) and waiting list control group to determine its effectiveness in reducing irritable/angry behavior in head injured subjects. Subjects consisted of 28 adults with previous head injury trauma who had difficulty with excessive irritability and anger. Subjects averaged 35.4 years of age and had an average of 8.9 years post head injury.

Treatment consisted of 10 group sessions over a five week period. Anger management training was designed to teach subjects self management skills aimed at reducing the frequency of angry acting out behavior. Training methods included role playing, relaxation training, assertiveness training and cognitive restructuring. The pseudo-social skills training group was a self-help group designed to encourage discussion of irritability problems without teaching specific coping techniques.

To assure some degree of homogeneity in cognitive abilities among subjects, minimum eligibility scores were
required on five subtests of the Wechsler Adult Intelligence Scale - Revised and the Peabody Picture Vocabulary Test. Dependent measures were pre and posttreatment scores obtained from five categories of the Katz Adjustment Scale — Relative form: belligerence, negativity, general psychopathology, social obstreperousness, and social role functioning. In addition, pre and posttreatment recordings of observed angry/irritable behavior in the subjects were obtained from a significant other.

Results failed to reveal statistically significant differences on the dependent measures between the three study groups. In addition, analysis failed to reveal any significant variables that predicted outcome. It is evident that much more organized research is needed to further investigate the possibilities of treatment for various problems encountered by those with head injuries.
# TABLE OF CONTENTS

<table>
<thead>
<tr>
<th>Section</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>LIST OF TABLES</td>
<td>iv</td>
</tr>
<tr>
<td>INTRODUCTION</td>
<td>1</td>
</tr>
<tr>
<td>Head Injury Symptomatology</td>
<td></td>
</tr>
<tr>
<td>Behavioral and Emotional Rehabilitation</td>
<td></td>
</tr>
<tr>
<td>Factors Affecting Outcome for Head Injury</td>
<td></td>
</tr>
<tr>
<td>Social Skills Training with Other Populations</td>
<td></td>
</tr>
<tr>
<td>Summary and Purposes</td>
<td></td>
</tr>
<tr>
<td>METHOD</td>
<td>21</td>
</tr>
<tr>
<td>Subjects</td>
<td></td>
</tr>
<tr>
<td>Instruments</td>
<td></td>
</tr>
<tr>
<td>Procedure</td>
<td></td>
</tr>
<tr>
<td>RESULTS</td>
<td>28</td>
</tr>
<tr>
<td>Outcome</td>
<td></td>
</tr>
<tr>
<td>Prediction of Response to Treatment</td>
<td></td>
</tr>
<tr>
<td>DISCUSSION</td>
<td>38</td>
</tr>
<tr>
<td>APPENDICES</td>
<td>48</td>
</tr>
<tr>
<td>REFERENCES</td>
<td>85</td>
</tr>
</tbody>
</table>
# LIST OF TABLES

<table>
<thead>
<tr>
<th>Table</th>
<th>Description</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Summary of Demographic Characteristics of Treatment and Control Groups</td>
<td>29</td>
</tr>
<tr>
<td>2.</td>
<td>Pretreatment Means and Standard Deviations for WAIS-R Subtests and PPVT.</td>
<td>31</td>
</tr>
<tr>
<td>3.</td>
<td>Pretreatment Means and Standard Deviations for Modified Katz Adjustment Scale</td>
<td>33</td>
</tr>
<tr>
<td></td>
<td>Relative form (KAS-R)</td>
<td></td>
</tr>
<tr>
<td>4.</td>
<td>Pretreatment and Posttreatment Means for the Modified KAS-R Measures</td>
<td>34</td>
</tr>
<tr>
<td>5.</td>
<td>Summary of t and p Values for Five Modified KAS-R Measures</td>
<td>35</td>
</tr>
<tr>
<td>6.</td>
<td>Pretreatment and Posttreatment Means for Irritability/Anger Measures</td>
<td>37</td>
</tr>
</tbody>
</table>
ANGER REDUCTION IN CLOSED HEAD INJURED INDIVIDUALS
WITH GROUP SOCIAL SKILLS TRAINING

Closed head injury has recently been labeled the "silent epidemic" of our time (Adamovich, Henderson, & Auerbach, 1985). The incidence of traumatic head injury in the United States has been estimated at about 200 per 100,000 population per year, which would be equivalent to approximately 400,000 such injuries per year (Adamovich et al., 1985). Improvements in medical care have brought about an increase in the survival of patients who sustained severe head injuries (McKinlay, Brooks, Bond, Martinage, & Marshall, 1981). Of those that survived, it has been estimated that 40,000-50,000 had moderate to severe head injuries that caused significant, prolonged disabilities (Uzzell & Gross, 1986). Another 70,000-90,000 had minor head injuries that resulted in persistent sequelae such as memory and/or behavioral problems that prevented immediate return to employment (Uzzell & Gross, 1986). Those who survive a head injury are often young adults with long life expectancies (Bond, 1984; Field, 1976; Uzzell & Gross, 1986).

The most common head injuries have been "closed head injuries" (CHI) or impact injuries as opposed to "open head injuries" or focal, penetration injuries. CHI are generally
sustained when the head is accelerated after a blow, or when
the moving head undergoes deceleration as occurs frequently
in road traffic accidents (Teasdale & Mendelow, 1984). CHI
do not result in discrete localized lesions, but produce a
confusing picture of widespread, diffuse lesions to
cortical and subcortical structures (Oddy, 1984). As can be
seen in the opening statistics, CHI have been relatively
common, while in peace time open or penetrating head
injuries have been quite rare (Oddy, 1984).

At one time, outcome after severe CHI was considered
with therapeutic pessimism on the part of surgeons and other
physicians working with these patients. Little was known
about the long term emotional, behavioral and other
psychological consequences of severe CHI (Brooks, 1984).
However, in recent years there has been an increased
interest in rehabilitation for the severely head injured
patient. This increase in interest can be seen in the
growth of rehabilitation facilities for the head injured
from 22 in 1980 to 350 in 1986 (Uzzell & Gross, 1986). Most
rehabilitation centers over the years have emphasized
physical therapy, occupational therapy, and speech and
language therapy in their programs (Ince, 1980; Bond &
Brooks, 1976). Only recently have researchers and therapists
recognized the importance of considering ongoing cognitive,
emotional, and behavior problems of the patient in the
overall rehabilitation programs.
Head injury symptomatology

The initial acute head injury trauma often results in a variety of physical symptoms, including speech and language difficulties (e.g. dysphasia and dysarthria), physical disabilities (e.g. hemiplegia) and visual impairment (Goethe & Levin, 1984; McKinlay et al., 1981). However, with time most of the above symptoms improve greatly, but lingering intellectual and behavioral symptoms continue to cause distress for the patients and their families for extended periods of time (Lezak, Cosgrove, O'Brien & Wooster, 1980). The intellectual and behavioral symptoms most often described have been summarized by Olsen and Henig (1983). They further identified the following emotional problems: (a) agitation and irritability, (b) poor emotional control, (c) apathy, (d) lack of insight and denial of disability, (e) self-centeredness and egocentrism, (f) impulsivity and lack of inhibition, and (g) secondary depression and withdrawal.

The intellectual and emotional problems noted above have caused difficulty for the patient and his/her family on a long term basis. Numerous researchers have stated that with the exception of those patients remaining in a persistent vegetative state, the residual disturbances involving intellect, behavior, and emotions have been far more problematic for the patient and family than any lingering physical symptoms (Bond, 1975; Brooks, 1984; Fahy,
There has been much research to support the notion that cognitive and emotional problems are more disruptive to the patient than physical symptoms. For example, Lecuire, Dechaume and Deruty (1971) found that neurological sequelae such as epilepsy, dysphasia, and hemiplegia were associated with poor chances of return to work, but were of less importance than cognitive complaints and behavioral disturbances. Oddy, Humphrey and Uttley (1978) and Weddell, Oddy and Jenkins (1980) found that personality changes were associated with both the extent and nature of social contacts. Those with severe personality changes had fewer and more superficial social encounters. Because of the realization that cognitive and emotional problems were ongoing and destructive for patients and family, some fairly recent efforts have been made to remediate these problems.

**Behavioral and emotional rehabilitation**

Wood (1984) stated that "few studies have concerned themselves with the nature of disordered or disturbed behavior after head injury, and even fewer with the control of such behavior." Goodkin (1966) was one of the first to use behavioral approaches to modify behavioral disturbances relating to motivation and cooperation in brain damaged patients. These patients were not damaged as a result of head injury, however, but by cerebral vascular accidents.
Wall (1969) and Hollon (1972) also utilized behavior modification methods to increase cooperation in the brain injured in a hospital rehabilitation unit. Powell (1981) presented a brief description of ways to alleviate the adverse personality and motivational changes following brain damage. Craine (1982) discussed the retraining of frontal lobe dysfunction in a patient and gave accounts of interventions carried out with other patients with frontal lobe dysfunction. However, these studies were mainly anecdotal and descriptive in nature. Wood and Eames (1981) and Eames and Wood (1985) systematically studied the effects of behavior modification techniques upon severely head injured patients with inappropriate disruptive behaviors. They worked with twenty-four "extremely severely damaged patients" and were able to improve some of their inappropriate behaviors through a very structured, enclosed unit organized as a token economy. They found that "even years after injury, persistent and comprehensive rehabilitation can achieve changes significant enough to make worthwhile improvement in quality of life." For a complete description of behavior modification techniques used in these studies one is referred to Wood (1984) who described and defined these techniques in detail.

Blair and Lanyon (1987) utilized an intensive, multidisciplinary rehabilitation program to improve social and adaptive living skills of ten severely head injured
adults. Outcome was compared to ten waiting list controls. Although they reported some improvement in the targeted social and adaptive living skills in the treated subjects, these changes did not reach statistical significance. Giles and Clark-Wilson (1988) taught functional living skills such as washing and dressing to four head injured adults. They utilized specific, individualized behavior modification programs to teach these skills with some success.

Johnson and Newton (1987) attempted to remediate social interaction deficits in ten severely head injured inpatients using a social skills training methodology. Training consisted of weekly 1½ hour group sessions over a period of one year. They utilized measures of social performance, social anxiety, and self-esteem. Although some individual changes were noted, no statistically significant results were found on any of their dependent measures. Ponsford and Kinsella (1988) studied the effects of a computer remedial program for attentional defects following a head injury. After controlling for spontaneous recovery and practice effect, the ten subjects showed no significant improvement in any of the measures used. Foxx, Martella and Marchand-Martella (1989) did have some success teaching problem solving skills to the head injured, but their subjects numbered only three.

As can be seen, there has been a paucity of well controlled research relating to the treatment of behavioral
and emotional problems of the brain injured patient. Although some researchers have provided evidence that cognitive and emotional problems can be successfully treated, they have not adequately controlled for the numerous factors that can influence the brain injured individual's response to treatment. The following factors should be considered when determining which head injury patients would benefit most from any kind of treatment program. These factors include injury severity, age, intelligence before injury, time since injury, location of injury, and pre-injury personality.

Factors Affecting Outcome for Head Injury Patients

Traditionally, severity of a head injury has been considered one of the most important factors when predicting head injury outcome. Severity has been assessed in three ways: initial level of consciousness, duration of coma, and duration of posttraumatic amnesia or PTA (Goethe & Levin, 1984). The fact that severity affects the degree and extensiveness of intellectual and behavioral disturbance has been well documented. Utilizing coma as a measure of severity, Lundholm, Jepsen, and Thornval (1975) found that only two out of seven patients with a coma length of four weeks or greater did not have severe behavior problems leading to poor social rehabilitation. Levin and Grossman (1978) concluded that head injury patients with the greatest coma duration also suffered from greater emotional
withdrawal, motor retardation, unusual thought processes, blunted affect, excitement and disorientation. These results were confirmed by Weddell, Oddy, & Jenkins (1980) who determined that the patients with longer coma lengths were less likely to return to work and recover socially.

Russell & Smith (1961) utilized PTA as a measure of severity and found that personality changes were varied and directly proportional to the length of PTA. Other researchers determined that psychiatric difficulties such as impaired cognitive capacity, affective behavioral disorders and somatic complaints increased with the severity of the head injury (Stedman & Graham, 1970; Lishman, 1968; Jennett, 1976). Oddy, et al. (1978) found that the more severely head injured patients (PTA greater than seven days) returned to work later, had fewer friends, and were more dependent on others when compared to the less severely impaired patients (PTA less than seven days).

The above studies suggested the importance of severity when considering head injury outcome; however, there has been evidence to the contrary. Dencker (1958) was one of the first to conclude that PTA duration did not have implications for eventual cognitive outcome. Mandelberg (1976) found that although Verbal IQ and Performance IQ levels on the Weschler Adult Intelligence Scale (WAIS) were related to PTA duration at three and six months postinjury, no such relationships were found at 12 and 30 months.
postinjury. Mandelberg and Brooks (1975) found that with
time, a group of severely head injured patients eventually
reached average levels of ability on the WAIS. Brooks and
McKinlay (1983) also found that severity was of no
significance in predicting the extent or pattern of
personality change in their head injury patients. Brooks,
Campsie, Symington, Beattie and McKinlay (1986) concluded on
the basis of their study that "neither affective and
emotional aspects nor physical, behavioral or cognitive
aspects of outcome relate to severity at five years
postinjury." Because of these divergent study results, the
role of severity of injury as a predictor of treatment
response remains unclear.

Another factor that greatly influenced the appropriate
recovery of head injury patients has been age. Most
researchers have found that older individuals (over 50)
commonly suffer from more serious and longer lasting effects
of head injury than younger individuals, and therefore have
poor prognoses for rehabilitation (e.g. Bond, 1984;
Carlsson, von Essen & Lofgren, 1968; Najensen, Grosswasser,
Stern, Schachter, David, Berghaus, & Mendelson, 1975). This
fact has been virtually undisputed in the literature, and
therefore would be considered an important factor when
determining who would benefit the most from a treatment
program.
The intelligence of a head injury patient before his or her injury has been found to influence their recovery. It has been noted that those with higher mental capacities before injury had better overall recovery (Bond & Brooks, 1976; Walker, 1972). In addition, those with previous high mental capacities were usually professionals and members of higher socioeconomic groups. As such, these patients obtained work appropriate to their residual skills more often than the less well endowed patients (Najensen, Mendleson, Schachter, David, Mintz & Grosswasser, 1974; Rusk, Block & Loman, 1969). It would be difficult to accurately discern a patient's intellectual skills before injury, although estimates based upon socioeconomic status, reading level, and educational attainment could be made. Those with previously high intellectual skills may respond more favorably to a treatment program than those who had lower intellectual skills before their injury. Those with comparatively more intellectual abilities would theoretically have more potential to learn new skills.

Time elapsed since injury has been recognized as important when considering the best time to commence treatment. Research has indicated that most recovery of function occurs within six months of the injury (Bond & Brooks, 1976; Rusk, Block & Loman, 1969). Curran, Partridge and Storey (1976) agreed that the rate of change was the greatest in the early stages, and the position at six months...
was a fair guide to the future. There has recently been evidence of behavioral and emotional changes that continue to occur after this six month recovery period. For example, Fordyce, Rouche, and Prigatano (1983) found that patients referred more than six months postinjury were more anxious, depressed, confused and socially withdrawn when compared to those referred less than six months postinjury. McKinlay et al. (1981) found an increase after six months in certain behavioral disturbances such as bad temper and mood swings. Without treatment, there has been little chance that these behavioral and emotional symptoms will improve. For example, Brooks et al. (1986) found that all emotional problems reported at one year postinjury were still present at five years postinjury.

Location of the areas of brain dysfunction have potentially affected outcome. The most commonly described problematic areas have been the frontal lobes. Curran et al. (1976) described the frontal lobe syndrome as occurring in patients with frontal lobe damage, in whom intellectual functions were relatively little disturbed. However, these patients showed disinhibition and alterations in drive and activity. Sexual and aggressive impulses were displayed outwardly and without shame. Many patients, on the other hand, became apathetic, aspontaneous, or lethargic with flat or dull affect (Rosenthal, 1984). Rosenthal noted that
these patients had a very poor prognosis, and therefore would not be good therapy or treatment candidates.

Although the frontal lobe syndrome has been fairly easy to find and diagnose, most CHI patients have not fallen into this category. Teasdale and Mendelow (1984) pointed out that estimates of the laterality of damage have been unreliable in severe CHI because of diffuse brain damage in addition to any focal effects. Lezak (1979) attempted to estimate laterality of damage in brain injured patients using various criteria and found that determining laterality had little influence on recovery. Therefore, other areas of damage besides the frontal lobes would be difficult to accurately define in a CHI patient, and probably would not be helpful in determining treatment outcome.

Pre-existing personality characteristics have been found to influence outcome of head injury by some researchers. Prigatano, Pepping and Klonoff (1986) theorized that if the head injured patient had difficulty abiding by basic social mores or behaving in a mature manner before injury, these characteristics would interact with the cognitive and personality problems produced by the brain injury. Curran et al. (1976) pointed out that anxious, vulnerable people who had difficulty coping before their injury may be overwhelmed and regressive following a head injury. Panting and Merry (1972) found that attacks of emotional rage after head injury were much more likely in
patients who had shown premorbid personality instability. Oddy and Humphrey (1980) concluded from their study of head injury outcome that premorbid personality affected social recovery. For example, pre-injury "nervousness" appeared to hinder resumption of both work and leisure while "verbal expansiveness" appeared to promote it. Researchers such as Brooks (1984) and Glasko & Edwards (1974) have stated that head injury patients overall were more likely to have had pre-injury drinking problems and antisocial personality characteristics. It would seem that those individuals with pre-existing antisocial personalities may be more resistant to treatment of any kind.

The above factors have frequently been neglected in previous studies involving behavioral treatment for the head injured. This study attempted to assess these factors by establishing inclusion criteria. For example, guidelines for age, injury severity, cognitive functioning, pre-injury neurologic disease, etc. were closely followed.

Improving the cognitive abilities of head injury patients and decreasing their disruptive behaviors have been attempted in previous treatment programs. In addition to decreasing the disruptive behaviors, there has been a need to increase the adaptive, functioning abilities of a head injured person. One way to increase and improve adaptive skills is through social skills training or assertiveness training. Social skills have been considered important
adaptive skills that are necessary to lead a meaningful, productive life. Social skills have been defined as interpersonal competencies needed to interact successfully with other people (Adamovich et al., 1985). As previously described, many head injury patients have difficulty interacting successfully with other people for many reasons, including their irritability, egocentricity and impulsivity. These behaviors often preclude appropriate social interactions and long term intimate relationships. Those with social skills deficits therefore often become lonely, isolated and estranged from others.

Researchers have supported the notion that inappropriate behavior following head injury trauma often resulted in social skills deficits. Oddy et al. (1978) and Weddell et al. (1980) found that individuals with head injuries that resulted in severe personality changes had fewer and more superficial social encounters than other head injury patients. Lezak et al. (1980) found complaints of persisting social problems in 70% of her total head injury patients, as well as "pervasive and almost universal social dislocation." Rosenthal (1984) suggested that social skills deficits were not overly the result of brain injury, but the perception of the injured that they were different, handicapped and unattractive. Irrespective of the cause of social skill deficits, organized skills training programs have not been widely attempted with head injury patients.
However, they have been utilized successfully with other populations for many years.

**Social skills training with other populations**

Social skills training has been described as a form of psychological intervention based on prearranged topics or sequences of topics designed to improve the interpersonal functioning of the target population (L'Abate & Milan, 1985). Most of the social skills training has been based on the early work on assertiveness by Satler (1949) and Wolpe (1958). Consistent with Wolpe's theoretical notions relating to anxiety and its reciprocal inhibitors, assertiveness training was originally presented as a treatment method for alleviating interpersonal anxiety and neurotic disorders. Hersen and Belleck (1976) concluded that the application of assertive training, or what is now often referred to more broadly as social skills training, has helped dysfunctional individuals acquire particular social skills enabling them to cope more effectively with their environment. Social skills training has been proven effective not only with the general population (e.g. Fensterheim & Baer, 1975; Smith, 1975), but also socially anxious college students (MacDonald, Lindquist, Kramer, McGrath & Rhyne, 1975), blacks (Cheek, 1976), non-assertive women (Jakubowski-Spector, 1973), alcoholics (Hirsch, 1977), explosive patients (Frederiksen, Jenkins, Foy & Eisler, 1976) and chronic schizophrenics (Hersen & Belleck, 1976).
Although the head injured often have numerous social skill deficits, researchers such as Olsen and Henig (1983) and Lezak (1978) have emphasized the irritability, impulsivity and egocentricity of the head injured. Those individuals who are irritable and lack empathy often express anger in a manner which is threatening or belligerent (Rimm, Hill, Brown & Stuart, 1974). Such behavior has been labeled as "aggressive" rather than "assertive." Aggression has been defined as verbal abuse or physical violence which involves the expression of one's needs or desires, independent of the rights, prerogatives or feelings of others (Rimm, 1977). In contrast to aggression, Lange and Jakubowski (1976) defined an assertive act as the expression of one's needs or desires while maintaining a positive concern for the rights of the other person. Historically, assertion and social skills training have been aimed at providing socially effective alternatives to belligerent behavior (Rimm et al., 1974).

One of the earliest reports of a specific skills training program for the treatment of temper disorders was carried out with a fourteen year old by Kauffman and Wagner (1972). They developed a training program composed of role playing, modeling, prompting, coaching, and social reinforcement. Anecdotal results indicated that the boy's overall behavior improved and he spent less time in isolation after treatment than before.
Foy, Eisler and Pinkston (1975) reported the application of skills training in the case of an adult who was exhibiting explosive rage. They found that modeling combined with social skills instruction was the most effective approach to reduce undesirable behaviors.

One of the only studies found that utilized a social skills training program to decrease aggressive behavior in the head injured was conducted by Wallace, Teigen, Liberman and Baker (1973). They were successful in decreasing the aggressive behavior of one brain injured young man using this technique. Rimm et al. (1974) treated individuals who had anger control problems with an assertion training group. When compared to a control group, the members of the assertion training group showed improvements on behavioral measures of assertiveness and a decrease in self-ratings of anger.

The treatment of aggressive adolescents was conducted in a social skills training format by Goldstein, Sherman, Gershaw, Sprafkin and Glick (1978). They utilized Structured Learning Therapy (SLT) which consisted of modeling, role playing, social reinforcement, and transfer (generalization) training. This technique produced significant improvements in skills such as empathy, negotiation, self control and assertiveness when compared to control conditions or alternative treatment programs.
Kolko, Dorsett and Milan (1981) utilized a social skills training program similar to SLT to promote anger control in hospitalized adolescent patients. They found that training resulted in the acquisition of five anger control skills that generalized to novel role-play situations. Frederiksen, Jenkins, Foy & Eisler (1976) were able to modify abusive verbal outbursts displayed by two adult psychiatric patients by utilizing social skills training.

Milan and Kolko (1985) conclude that "social skills training programs that have been utilized in the treatment of the behavior of explosive, aggressive or hostile individuals have indicated relatively rapid and clinically significant improvements in specific problematic behaviors, classroom, ward, or unit functioning, and overall social adjustment." They recommend using a basic skills training program consisting of instructions, modeling, rehearsal, feedback, coaching and social reinforcement.

As can be seen, although group skills training programs have been utilized successfully to treat aggressive, hostile behavior in various populations, these programs have not been widely used to alleviate similar behaviors in the head injured. Historically, there has not been emphasis placed upon the cause of this maladaptive behavior, but the treatment of it with structured programs. Therefore, although the irritable behavior may have started after an
individual suffered a head injury, regardless of the cause, he or she may respond to a skills training program in a positive manner as other aforementioned populations have responded.

Many head injured individuals have difficulty in social situations because of their ongoing problems with anger, irritability and egocentrism. Social skills training has helped other dysfunctional individuals reduce angry responses and acquire more appropriate assertive social responses, enabling them to cope more effectively with their environment. However, there are few published examples of the use of a structured, organized social skills training program for the head injured. This study investigated the effects of social skills training on the irritable, self centered and angry behavior of head injured individuals.

This study was designed to minimize methodological inadequacies that prevailed in previous research involving the head injured. Much of the previous research has been descriptive and anecdotal in nature. Little effort was made to assess for important prognostic factors in the head injured subjects such as age, time elapsed since injury, severity of injury, and current level of cognitive functioning. These factors were all taken into consideration in the design of this study. Strict inclusion criteria factors were closely followed. In addition, larger groups of subjects were studied in contrast to previous
individual or small group cases. An attempt was made to obtain objective, observed measurements of the subjects' irritable, angry behaviors through daily logs. In addition, an established questionnaire was utilized to obtain scores relating to the subjects' belligerence, negativity, general psychopathology, and social role functioning.

It was hypothesized that completion of a comprehensive social skills training program would result in a decrease in the head injured subject's irritability, anger, and overall social obstreperousness. These positive changes would be accomplished by attempting to teach the subjects more appropriate, direct and socially acceptable ways of dealing with and expressing their anger. It was further hypothesized that such an organized, comprehensive skills training program would result in a greater degree of improvement in the target behaviors when compared to a pseudo-social skills training group offering no specific coping techniques. Both groups hypothetically would result in more therapeutic changes than noted in a waiting list control group. Furthermore, an overall decrease in irritability and an increase in appropriate social skills as a result of skills training hypothetically would improve the overall social role functioning of the head injured subject when compared to the two other research groups.
Method

Subjects

Head injured subjects were obtained through referrals from psychologists, physicians, newspaper advertisements and a local head injury support group. Subjects were referred if they had a closed head injury and reportedly had difficulty with irritability or undercontrolled anger. Between September 1987 and June 1989, 53 individuals were interviewed and evaluated for participation in the study. Thirty-seven subjects met the criteria for participation and 30 were willing and able to participate. A total of 28 subjects completed the study, ten in the treatment group, eight in the pseudo-social skills treatment group, and ten in the waiting list control group. Twenty-seven of the subjects were Caucasian and one was Hispanic. There were 25 males and 3 females with an age range from 24 to 50 years (M = 35.4 years). Average years of education was 13.3, and years since head injury ranged from 1 to 28 (M = 8.9 years). Injury resulted from a motor vehicle accident (MVA) in 14 cases, a fall in 6 cases, a blow to the head in 7 cases, and an airplane accident in one case. All had a moderate to severe head injury, as defined by an injury requiring a greater than 48 hour stay in the hospital. Eight subjects were married at the time of the study and 20 were single.
Procedure

Potential subjects were contacted by the principal investigator and informed that a group anger management training program for the head injured was being offered at the Medical University of South Carolina (MUSC) Institute of Psychiatry. They were told why their irritability problems were viewed as being amenable to the treatment program and that the program was being conducted for research purposes and was therefore free of cost. Additionally, they were given a brief description of the parameters of involvement in the group (e.g., frequency of group sessions, maintenance of an anger/irritability log, etc.) if they both desired and qualified to participate. If the individual expressed either a desire to participate or to discuss the program more fully, an interview appointment was scheduled.

Interested participants met individually with the principal investigator at the MUSC Institute of Psychiatry to have the details of the group explained to him/her and have any questions answered. If the individual expressed a desire to participate, he/she was asked to: (a) read and sign an informed consent form (Appendix A); (b) respond to a demographic questionnaire (Appendix B); and (c) undergo an interview to determine the history of his/her head injury, current mental status and significant pre-injury information.
Inclusion criteria for participation were: (a) a history of closed head injury as documented by medical records; (b) no history of pre-injury neurological disease such as stroke, Alzheimer's, etc. as reported by a relative or found in medical records; (c) apparent absence of severe psychopathology (i.e., psychosis, antisocial personality disorder) as observed in interview session or determined from historical records; (d) ability to read and comprehend self report assessments as observed during the interview sessions (reading informed consent form); (e) age between 18 and 50; (f) a scale score of 6 or greater on five Wechsler Adult Intelligence Scale Revised (WAIS-R) subtests to assure adequate memory, attention and comprehension skills (these subtests were: Digit Span, Vocabulary, Comprehension, Block Design and Digit Symbol); (g) ability to utilize arms and hands; (h) receptive language skills adequate to comprehend new information as determined by the Peabody Picture Vocabulary Test (PPVT); and (i) minimum of nine months since time of injury.

The first fifteen subjects were invited to participate and randomly assigned to one of three groups: (a) anger management treatment group, (b) pseudo-social skills treatment group, or (c) waiting list controls. Five subjects were placed in each group. Recruitment difficulties necessitated assignment of only five subjects per group instead of the initially planned ten. Fifteen
more able subjects were selected at a later date, and they also were randomly assigned to the three groups, with five in each group.

Subjects accepted for treatment following the interview, questionnaire results, and psychometric assessment were provided with the daily irritability/anger log sheets. In addition, the parents or spouses of the subjects were provided with the same log sheets. Subjects and their significant others were instructed to maintain recordings of irritability/anger incidents for a two week period prior to their scheduled first treatment session. In addition, a parent or spouse was asked to complete a modified KAS-R prior to treatment and again following treatment.

**Instruments**

**Demographic Data Questionnaire.** Sex, age, marital status, race, current and prior occupation, date of injury, household individuals and previous treatment history were obtained from subjects during the screening interview and evaluation (Appendix B).

**Modified Katz Adjustment Scale - Relative Form (KAS-R).** A modified KAS-R was filled out by a spouse or parent to obtain information about the subject's problems with irritability and anger. The KAS-R was developed in 1962 for psychiatric patients by Katz and Lyerly to provide measures of patient adjustment and functioning in the community. For
purposes of this study, only the items comprising belligerence, negativism, and general psychopathology categories were utilized. The items were rated on a 4-point Likert scale with the number 1 representing "almost never" and a 4 representing "almost always" (Appendix C). Items from the scale were assigned to the above three categories by the principal investigator to obtain three separate scores (Appendix D). The total of the three scores gave an overall "Social Obstreperousness" score.

**KAS-R Social Role Functioning.** This form was completed by the spouse or parent of the subject to determine his/her participation in social activities and contribution to household responsibilities (Appendix E). This form was completed prior to treatment and again following completion of the study. Items on this form were rated on a 4-point Likert scale, with number 1 representing "is not doing," number 2 meaning "is doing some," number 3 "is doing regularly," and number 4 "does not apply." The higher the number, the greater the adaptive social role functioning of the subject.

**Irritability/Anger Diary.** Each subject and his/her spouse or parent was asked to record, for each hour of the subject's waking day, (a) incidents of irritability or angry outbursts and (b) intensity of these incidents according to defined categories (Appendix F). Subjects and their spouses or parents were required to maintain the diary
for two weeks prior to initiating treatment and again two weeks following treatment. Head injured subjects demonstrated very poor compliance with completing their diaries; therefore, not enough data was available from them for analysis. Consequently, only the diary data obtained from a relative or spouse was utilized for research purposes.

**Treatment**

Treatment procedures were administered during ten 1½ hour biweekly group sessions conducted at the Institute of Psychiatry at MUSC. Specific treatment procedures were as follows.

**Anger Management Treatment Group.** Two treatment groups consisting of five subjects each utilized this format. This group involved teaching the subjects how to cope with frustrating incidents involving work, family, and friends. Basically, this treatment group was a structured social skills training program aimed at decreasing the subjects' irritability by attempting to teach them assertiveness, empathy, and appropriate social skills. Sessions consisted of teaching the subjects skills such as dealing more appropriately with confrontation, methods of impulse control, and appropriate assertion in contrast to anger and irritation. Treatment methods were derived from the anger and irritability treatment programs developed by Navaco and Fiendler. Specific techniques utilized included role
playing, relaxation training, assertiveness training, and cognitive restructuring. For a complete outline of the total procedure followed for the ten treatment sessions, see Appendix G.

**Pseudo-Social Skills Treatment Group.** Basically, a "self-help" group format was used with no actual training methods. Ten subjects each participated in this treatment group, five in one group with a female psychology intern, and five in another group with a male psychologist. Both groups utilized the same format. The role of the group leader or therapist for this group was as follows:

1. Provide support, supervision, and encouragement to the group members.
2. Listen, but do not offer definite suggestions or engage in specific therapeutic counseling or training.
3. Encourage the group members to discuss their problems with temper and irritability.
4. Encourage the group members to offer suggestions and understanding comments to each other.
5. Keep group members on subject and interrupt members who talk without listening to others.
6. Give everyone the opportunity to discuss his or her specific problem.
7. Encourage camaraderie between members.
8. Try to maintain interest in the group and keep things moving.

**Waiting List Control Group.** This group was comprised of ten subjects who were informed that no space was available in the treatment groups. They were asked to complete the same questionnaire and anger/irritability diaries as the treatment group members. Following the completion of the treatment groups, these subjects were asked to complete the same forms again. They were offered the opportunity to participate in the anger management training group if interested.

**Results**

Analyses are performed to (a) test for differences across conditions in demographic variables, (b) assess outcome, and (c) identify variables predictive of response to treatment.

**Treatment Group Composition.** Table 1 summarizes the demographic characteristics of the two treatment groups and the control group. One way analysis of variance reveals no significant differences between the groups for the variables of age, $F(2,25) = 2.18, p > .05$, number of years education, $F(2,25) = 1.02, p > .05$, and number of years since injury, $F(2,25) = .38, p > .05$. The chi-square statistic determines that these groups are also not significantly different.
Table 1

Summary of Demographic Characteristics of Treatment and Control Groups

<table>
<thead>
<tr>
<th>Characteristics</th>
<th>AMTG</th>
<th>PSSTG</th>
<th>WLC</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mean</td>
<td>37.4</td>
<td>30.0</td>
<td>39.1</td>
</tr>
<tr>
<td>Standard Deviation</td>
<td>9.9</td>
<td>4.7</td>
<td>10.6</td>
</tr>
<tr>
<td>No. of Years Education</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mean</td>
<td>13.1</td>
<td>12.6</td>
<td>14.2</td>
</tr>
<tr>
<td>Standard Deviation</td>
<td>3.2</td>
<td>1.4</td>
<td>2.1</td>
</tr>
<tr>
<td>Years Since Injury</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mean</td>
<td>10.4</td>
<td>8.6</td>
<td>7.4</td>
</tr>
<tr>
<td>Standard Deviation</td>
<td>8.9</td>
<td>8.4</td>
<td>5.5</td>
</tr>
<tr>
<td>Marital Status</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Married</td>
<td>40%</td>
<td>12%</td>
<td>30%</td>
</tr>
<tr>
<td>Single</td>
<td>60%</td>
<td>88%</td>
<td>70%</td>
</tr>
<tr>
<td>Race</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>White</td>
<td>100%</td>
<td>88%</td>
<td>100%</td>
</tr>
<tr>
<td>Hispanic</td>
<td>0%</td>
<td>12%</td>
<td>0%</td>
</tr>
<tr>
<td>Sex</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Male</td>
<td>100%</td>
<td>75%</td>
<td>90%</td>
</tr>
<tr>
<td>Female</td>
<td>0%</td>
<td>25%</td>
<td>10%</td>
</tr>
</tbody>
</table>

Note. AMTG = Anger management treatment group; PSSTG = Pseudo-social skills treatment group; WLC = Waiting list control.
regarding marital status, $X^2(4) = 5.46$, $p > .05$, or sex, $X^2(4) = 2.91$, $p > .05$.

Cognitive Ability Levels. Five subtests of the Wechsler Adult Intelligence Scale - Revised are given as part of the inclusion criteria to participate in the study. This is an attempt to keep group members as close as possible to similar memory, attention, and concentration skills. A minimum scaled score of 6 is considered necessary to make sure each subject has the necessary cognitive abilities to benefit from a group training program. In addition, a minimum standard score of 64 is required on the PPVT to test for adequate receptive language skills. A one-way analysis of variance reveals no significant differences between the groups on any of the WAIS-R subtests: Digit Span, $F(2,25) = 1.66$; Vocabulary, $F(2,25) = 2.5$; Comprehension, $F(2,25) = 1.04$; Block Design, $F(2,25) = .60$; Digit Symbol, $F(2,25) = 1.1$; all $p$'s > .05. However, examination of the pretreatment scores on the PPVT presented in Table 2 reveals differences among groups on this measure, $F(2,25) = 3.97$, $p < .03$. Post hoc analysis utilizing the Newman-Keuls procedure determines that this significant difference in scores is between the pseudo-social skills training group and the waiting list control group, $p < .003$. This difference is not found to be correlated to outcome.

Pretreatment Modified KAS-R Measures. Five variables are utilized as dependent measures from a modified KAS-R scale:
Table 2

Pretreatment Means and Standard Deviations for WAIS-R Subtests and PPVT

<table>
<thead>
<tr>
<th>Measure</th>
<th>AMTG</th>
<th>PSSTG</th>
<th>WLC</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Digit Span</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mean</td>
<td>9.5</td>
<td>7.8</td>
<td>9.4</td>
</tr>
<tr>
<td>Standard Deviation</td>
<td>2.5</td>
<td>1.6</td>
<td>2.4</td>
</tr>
<tr>
<td><strong>Vocabulary</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mean</td>
<td>10.2</td>
<td>9.0</td>
<td>11.5</td>
</tr>
<tr>
<td>Standard Deviation</td>
<td>3.0</td>
<td>1.9</td>
<td>2.0</td>
</tr>
<tr>
<td><strong>Comprehension</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mean</td>
<td>10.2</td>
<td>9.4</td>
<td>11.1</td>
</tr>
<tr>
<td>Standard Deviation</td>
<td>2.8</td>
<td>2.8</td>
<td>1.9</td>
</tr>
<tr>
<td><strong>Block Design</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mean</td>
<td>9.5</td>
<td>8.0</td>
<td>9.1</td>
</tr>
<tr>
<td>Standard Deviation</td>
<td>3.4</td>
<td>2.6</td>
<td>2.7</td>
</tr>
<tr>
<td><strong>Digit Symbol</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mean</td>
<td>7.3</td>
<td>6.5</td>
<td>7.0</td>
</tr>
<tr>
<td>Standard Deviation</td>
<td>1.3</td>
<td>0.93</td>
<td>1.1</td>
</tr>
<tr>
<td><strong>PPVT Standard Score Equivalents</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mean</td>
<td>95.2</td>
<td>82.1</td>
<td>102.8</td>
</tr>
<tr>
<td>Standard Deviation</td>
<td>19.1</td>
<td>12.4</td>
<td>13.6</td>
</tr>
</tbody>
</table>

Note. AMTG = Anger management treatment group; PSSTG = Pseudo-social skills treatment group; WLC = Waiting list control.
belligerence, negativity, general psychopathology, total social obstreperousness, and overall social role functioning. The group pretreatment means and standard deviations on these scales are presented in Table 3. A one-way analysis of variance reveals no significant pretreatment differences between the groups on the following variables: belligerence, $F(2,25) = 1.73, p > .05$; negativity, $F(2,25) = 1.24, p > .05$; total social obstreperousness, $F(2,25) = 2.7, p > .05$; and social role functioning, $F(2,25) = 1.26, p > .05$. However, a pretreatment difference is found for general psychopathology, $F(2,25) = 4.07, p < .02$. Post hoc analysis utilizing the Newman-Keuls procedure indicates a difference between the anger management treatment group and the waiting list control group ($p < .01$).

Because there is a pretreatment difference in the general psychopathology category, analysis of covariance (with pretreatment scores as the covariate) is employed to provide the most sensitive comparative assessment of treatment differences. To determine whether each treatment condition resulted in pretreatment to posttreatment differences on the variety of dependent measures, $t$-tests for correlated means are assessed separately for each group and presented in Tables 4 and 5.

**Modified KAS-R Measures**

Pretreatment and adjusted posttreatment means for the five modified KAS-R measures are presented in Table 4.
Table 3

Pretreatment Means and Standard Deviations for Modified Katz Adjustment Scale - Relative form (KAS-R)

<table>
<thead>
<tr>
<th>Measure</th>
<th>AMTG</th>
<th>PSSTG</th>
<th>WLC</th>
</tr>
</thead>
<tbody>
<tr>
<td>Belligerence</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mean</td>
<td>23.7</td>
<td>19.0</td>
<td>19.4</td>
</tr>
<tr>
<td>Standard Deviation</td>
<td>7.1</td>
<td>6.7</td>
<td>4.2</td>
</tr>
<tr>
<td>Negativity</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mean</td>
<td>24.6</td>
<td>20.6</td>
<td>20.8</td>
</tr>
<tr>
<td>Standard Deviation</td>
<td>6.7</td>
<td>5.8</td>
<td>6.1</td>
</tr>
<tr>
<td>General Psychopathology</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mean</td>
<td>36.0</td>
<td>29.8</td>
<td>26.8</td>
</tr>
<tr>
<td>Standard Deviation</td>
<td>8.2</td>
<td>7.4</td>
<td>6.1</td>
</tr>
<tr>
<td>Total Social Obstreperousness</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mean</td>
<td>84.3</td>
<td>69.4</td>
<td>66.9</td>
</tr>
<tr>
<td>Standard Deviation</td>
<td>19.7</td>
<td>18.6</td>
<td>15.4</td>
</tr>
<tr>
<td>Social Role Functioning</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mean</td>
<td>28.9</td>
<td>32.2</td>
<td>33.3</td>
</tr>
<tr>
<td>Standard Deviation</td>
<td>5.9</td>
<td>5.0</td>
<td>7.8</td>
</tr>
</tbody>
</table>

Note. AMTG = Anger management treatment group; PSSTG = Pseudo-social skills treatment group; WLC = Waiting list control.
Table 4

Pretreatment and Posttreatment Means for the Modified KAS-R Measures

<table>
<thead>
<tr>
<th>Measure</th>
<th>Group</th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>AMTG</td>
<td>PSSTG</td>
<td>WLC</td>
<td></td>
</tr>
<tr>
<td>Belligerence</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pre</td>
<td>23.7</td>
<td>19.0</td>
<td>19.4</td>
<td></td>
</tr>
<tr>
<td>Post&lt;sup&gt;a&lt;/sup&gt;</td>
<td>19.2</td>
<td>18.7</td>
<td>19.3</td>
<td></td>
</tr>
<tr>
<td>Negativity</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pre</td>
<td>24.6</td>
<td>20.6</td>
<td>20.8</td>
<td></td>
</tr>
<tr>
<td>Post&lt;sup&gt;a&lt;/sup&gt;</td>
<td>20.7</td>
<td>21.0</td>
<td>20.7</td>
<td></td>
</tr>
<tr>
<td>General Psychopathology</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pre</td>
<td>36.0</td>
<td>29.8</td>
<td>26.8</td>
<td></td>
</tr>
<tr>
<td>Post&lt;sup&gt;a&lt;/sup&gt;</td>
<td>27.7</td>
<td>29.8</td>
<td>30.3</td>
<td></td>
</tr>
<tr>
<td>Total Social Obstreperousness</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pre</td>
<td>84.3</td>
<td>69.4</td>
<td>66.9</td>
<td></td>
</tr>
<tr>
<td>Post&lt;sup&gt;a&lt;/sup&gt;</td>
<td>59.9</td>
<td>69.6</td>
<td>70.0</td>
<td></td>
</tr>
<tr>
<td>Social Role Functioning</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pre</td>
<td>28.9</td>
<td>32.25</td>
<td>33.3</td>
<td></td>
</tr>
<tr>
<td>Post&lt;sup&gt;a&lt;/sup&gt;</td>
<td>31.0</td>
<td>32.5</td>
<td>33.1</td>
<td></td>
</tr>
</tbody>
</table>

<sup>a</sup>Adjusted means.

Note. AMTG = Anger management treatment group; PSSTG = Pseudo-social skills treatment group; WLC = Waiting list control.

Note. A decrease in scores on the first four measures represents improvement. An increase in scores on the last measure indicates improvement.
Table 5
Summary of t and p Values for Five Modified KAS-R Measures

<table>
<thead>
<tr>
<th>Measure</th>
<th>Group</th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>AMTG</td>
<td>PSSTG</td>
<td>WLC</td>
<td></td>
</tr>
<tr>
<td>Belligerence</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>$t^a$</td>
<td>1.82</td>
<td>1.37</td>
<td>.925</td>
<td></td>
</tr>
<tr>
<td>$p^b$</td>
<td>.0997</td>
<td>.2119</td>
<td>.3823</td>
<td></td>
</tr>
<tr>
<td>Negativity</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>$t^a$</td>
<td>.851</td>
<td>.948</td>
<td>2.18</td>
<td></td>
</tr>
<tr>
<td>$p^b$</td>
<td>.4212</td>
<td>.3774</td>
<td>.0549</td>
<td></td>
</tr>
<tr>
<td>General Psychopathology</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>$t^a$</td>
<td>2.03</td>
<td>.864</td>
<td>.591</td>
<td></td>
</tr>
<tr>
<td>$p^b$</td>
<td>.0701</td>
<td>.42</td>
<td>.5740</td>
<td></td>
</tr>
<tr>
<td>Social Obstreperousness</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>$t^a$</td>
<td>2.03</td>
<td>1.31</td>
<td>1.178</td>
<td></td>
</tr>
<tr>
<td>$p^b$</td>
<td>.0706</td>
<td>.2299</td>
<td>.2685</td>
<td></td>
</tr>
<tr>
<td>Social Role Functioning</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>$t^a$</td>
<td>.087</td>
<td>.836</td>
<td>1.01</td>
<td></td>
</tr>
<tr>
<td>$p^b$</td>
<td>.8925</td>
<td>.4347</td>
<td>.3406</td>
<td></td>
</tr>
</tbody>
</table>

$^a$Degree of freedom = 7.

$^b$One-tailed.

Note. AMTG = Anger management treatment group; PSSTG = Pseudo-social skills treatment group; WLC = Waiting list control.
Analysis of covariance fails to reveal significant treatment differences on any of these measures: belligerence, $F(2,24) = .065$; negativity, $F(2,24) = .025$; general psychopathology, $F(2,24) = .764$; total social obstreperousness, $F(2,24) = 1.072$; and social role functioning, $F(2,24) = .668$; all $p's > .05$.

Summary of $t$ and $p$ Values for Modified KAS-R Measures

Results of $t$ comparisons indicate no statistically significant changes in any measure in any treatment group, as presented in Table 5.

Irritability/Anger Recordings

Three behavioral irritability/anger measures are computed for two weeks before and after the study: total number of incidents, cumulative (total number x intensity), and mean intensity. These results are presented in Table 6. Inspection of Table 6 indicates that the treatment conditions show no significant reduction in anger/irritability recordings when compared to a waiting list control group. One-way analysis of variance reveals no significant differences between the groups before intervention for these variables: total number of incidents, $F(2,25) = .02$, $p > .05$; cumulative, $F(2,25) = .04$, $p > .05$; and mean intensity, $F(2,25) = .04$, $p > .05$. Therefore, a two factor analysis of variance design is utilized. Analysis of variance on the posttreatment total number of incident scores, cumulative scores, and mean intensity
Table 6

Pretreatment and Posttreatment Means for Irritability/Anger Measures

<table>
<thead>
<tr>
<th>Measure</th>
<th>Group</th>
<th>AMTG</th>
<th>PSSTG</th>
<th>WLC</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total Number of Incidents</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pre</td>
<td>20.7</td>
<td>22.5</td>
<td>20.3</td>
<td></td>
</tr>
<tr>
<td>Post</td>
<td>20.5</td>
<td>19.5</td>
<td>19.0</td>
<td></td>
</tr>
<tr>
<td>Cumulative (number x intensity)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pre</td>
<td>30.5</td>
<td>27.0</td>
<td>24.8</td>
<td></td>
</tr>
<tr>
<td>Post</td>
<td>27.9</td>
<td>25.8</td>
<td>24.5</td>
<td></td>
</tr>
<tr>
<td>Mean Irritability Intensity</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pre</td>
<td>1.56</td>
<td>1.15</td>
<td>1.24</td>
<td></td>
</tr>
<tr>
<td>Post</td>
<td>1.43</td>
<td>1.30</td>
<td>1.34</td>
<td></td>
</tr>
</tbody>
</table>

Note. AMTG = Anger management treatment group; PSSTG = Pseudo-social skills treatment group; WLC = Waiting list control.

scores fails to reveal significant treatment differences: total number of incidents, F(2,25) = .01, p > .05; cumulative, F(2,25) = .08, p > .05; and mean intensity, F(2,25) = 1.7, p > .05.

Prediction of Response to Treatment

To determine variables related to symptom changes, all pretreatment scores and various demographic variables were correlated with modified KAS-R measure changes and
anger/irritability diary changes. Posttreatment change scores were computed by the formula \( \frac{(\text{pretreatment} - \text{posttreatment})}{\text{pretreatment} \times 100} \). No significant correlations were found \( (p = .01 \text{ to guard against spurious findings}) \).

Discussion

Many head injured individuals have difficulty in social, work, and family situations because of ongoing problems with anger, irritability, and egocentrism. Social skills training has effectively helped other dysfunctional individuals reduce irritability and acquire more appropriate assertive responses, allowing them to cope more effectively with frustration and conflicts. There are few published examples of the use of a structured social skills training program for the head injured. The hypothesis that completion of such a program would result in a reduction in a subject's irritability, anger, negativity, and belligerence is the primary focus of this study. It is further hypothesized that a reduction in inappropriate behavior would result in overall improvement in social role functioning. A standard outcome methodology comparing a group anger management program to a pseudo-social skills training group and waiting list control group is utilized.

Results of the present study indicate that participation in the anger management treatment group or
pseudo-social skills training group does not lead to a significant reduction in the subject's irritable/angry responses when compared to a waiting list control. Neither treatment group is found to be significantly more effective than the other. No significant within group changes are found. According to the results, overall social role functioning is not improved significantly by these treatment programs.

Out of necessity treatment groups in the current study are small, contributing to the nonsignificant results. Unfortunately, because of these small groups, statistical significance would not be obtained without very large clinical changes. However, such large clinical changes over a short period of time such as five weeks would not be expected in a population of severely head injured individuals (Miller, 1984). Therefore, it would be premature to totally discount the effectiveness of a group skills training program with the head injured on the basis of the current nonsignificant small sample results.

The researchers who have obtained statistically significant results have been those working with individuals or very small numbers of head injured subjects. For example, Foxx, Martella and Marchand-Martella (1989) successfully taught problem solving skills to three head injured subjects. Giles and Clark-Wilson (1988) had a total of four subjects in their study determining the success of
adaptive skills training. As the subjects in previous studies increase, the ability to obtain significant results statistically seems to decrease (e.g., Blair and Lanyon, 1987; Johnson and Newton, 1987; Ponsford and Kinsella, 1988). This leads to a point made by Whittaker (1986), who questions whether or not group skills training with a head injured population is clinically possible. Because head injured group members are inherently varied due to diffuse and individual injuries, he notes that group heterogeneity may be a limiting factor. He states that the traditional assumption of homogeneity being vital to research may not be valid in neuropsychological research.

Certainly the results of this study are influenced by group heterogeneity despite efforts to minimize this problem. Because the lesions produced by head injury are characteristically diffuse, multiple, and varied, it is difficult short of individual case descriptions to give a clear view of the actual patterns of brain damage shown by study subjects (Eames and Woods, 1985). In addition to injury severity differences, years since injury and age varied within each group. These two factors are shown to influence an individual's response to treatment and overall recovery (i.e., Bond and Brooks, 1976; Rusk, Block, and Loman, 1969; and Curran, Partridge, and Storey, 1976).

Difficulty conducting this study was evident from the beginning when recruitment of outpatient head injured
subjects was slow and problematic. One of the primary
problems was the noncompliance and uncooperative behavior of
the subjects because of their head injury and/or anger
control difficulties. Conducting treatment sessions with an
outpatient head injured population highlighted numerous
problems with this approach. Transportation difficulties
and employment conflicts were two of the numerous reasons
given by some group members preventing them from attending
all sessions. The group leaders had few adverse
consequences available for dealing with sporadic attendance
in outpatients. Outpatient populations are always more
difficult to control and deal with when research is
involved, but the head injured have many confounding
problems as compared to other highly motivated, intelligent
subjects such as college students often utilized for
research purposes.

Certainly, an inpatient approach would alleviate some
of the above problems. There would be several crucial
advantages to an inpatient population over an outpatient
one. For example, an inpatient environment lends itself to
mandatory attendance and participation. This would be
especially helpful because many of the head injured
subjects have limited motivation and insignificant insight
(anosognosia) to put forth effort into improving their
behavior.
Secondly, an inpatient environment often involves clinical observations and assessments by trained professionals rather than the observational skills of parents or spouses who are emotionally involved with the subjects. For example, many of the parents or spouses of the head injured consider themselves to be under a great deal of stress and often consider the injured to be a burden (Livingston, Brooks, and Bond, 1985; Bond, 1984).

Thirdly, an inpatient population facilitates keeping track of various medications taken by subjects that influence their behavior. Several subjects in this study were taking a variety of medications which may have influenced their memory, concentration, behavior, etc. In addition, it was discovered that some subjects seemed to have drug or alcohol abuse problems in addition to their referring problem of irritability. Drug and/or alcohol abuse would certainly influence the subject's behavior and affect his or her ability to benefit from a skills training program. However, drug abuse could not be addressed significantly in the current research/treatment program. Inpatients more than likely would not have unlimited access to drugs and alcohol, reducing this problem.

Another important confounding factor involved variable employment situations for subjects. For example, one subject's pre and post measures were significantly improved, but it is noted that he began employment during the course
of the study. It is evident, therefore, that this factor may have been the catalyst for his positive change in behavior rather than the treatment program itself. Employment would be another factor which is more easily controlled for in an inpatient population.

Length of the treatment program also may have affected outcome. Certain subjects were fraught with personal problems including family deaths and divorce. Although individual problems were addressed in the group process, the current study length of five weeks was not really long enough to look in depth into coping with such issues. The short length of the treatment programs in this study more than likely contributed to the non-significance of the results. Johnson and Newton (1987) conducted their treatment sessions weekly for one full year but noted that they did not think this was long enough to effect significant therapeutic changes in a population such as the head injured.

Two other factors that were difficult to control for and more than likely influenced the results involve pre-injury intelligence and personality. In their study, Fahy et al. (1967) found that approximately 46% of head injured victims were maladjusted in some way before their injury. For example, many head injured had pre-traumatic neuroticism, heavy drinking, petty crime, low intelligence, or epilepsy. If the above symptoms were present before
injury in some of the subjects, perhaps their treatment response could be compromised.

Although the WAIS-R subscales are utilized in this study to control for certain cognitive abilities such as memory and attention, other cognitive abilities are more difficult to measure. For example, Olsen and Henig (1983) identified intellectual problems in the head injured including impaired abstraction, judgement, ability to integrate new task skills and behavior. Variances in these abilities could affect training outcome in that some subjects may have more difficulty putting to use skills training techniques than others.

The dependent measures utilized in this study are not ideal for this population. Anger/irritability diaries introduced in an attempt to keep a record of the subject's irritable and angry acting out behaviors were not accurately completed.

Most of the head injured subjects did not have the motivation, insight, self-discipline or understanding to complete a daily log for two weeks. Only five correctly completed pre and post diaries were turned in to the principal investigator by the subjects. Obviously, this assessment and research tool is a highly impractical one for use in research with the head injured population.

In addition, most subjects in this study (20 out of the 28 total) are single. While some subjects live at home,
others live independently, making it difficult for their parents to keep any type of accurate "diary" of their daily behavior for two weeks. Of the subjects living at home or married, several are employed full time, a situation that does not lend itself to accurate behavioral observations.

Many of the parents and spouses had to be strongly encouraged to keep these records by the principal investigator. Motivation to comply with keeping these records was overall very low. Several relatives reported irritability problems with the subject to the principal investigator, but these problems did not appear to be accurately reflected in the scores obtained from their diaries about the subject's behavior.

Dependent measures obtained from the modified Katz Adjustment Scale (KAS-R) are not adequate. Although a few scales from the KAS-R are obtained and analyzed, it would have been very useful if more varied and objective measures were utilized for this study. The scales reporting belligerence, negativity, general psychopathology, and social obstreperousness are not very sensitive to subtle behavior changes that may have resulted from the treatment programs. Other useful instruments for future consideration include those measuring depression, anxiety, or self-esteem.

The lack of significant treatment results may be due in part to treatment program deficiencies. More specifically, the current treatment program does not have an effective
contingency management component. Milan and Kolko (1985) emphasize the importance of using a simple contingency management program in conjunction with a skills training program. They suggest contingency management procedures such as differential reinforcement, contingency contracting, token reinforcement, time-out, response cost and punishment. Madsen, Becker and Thomas (1968) found that rules and training alone had little effect on reducing aggressive, disruptive behavior. Conditions involving reinforcement and/or extinction with or without the rules were much more effective. The current treatment program has no effective contingencies to the appropriate or inappropriate behavior of the subjects, thereby reducing the chances of positive results.

The non-significant results of this study seems to argue for more individualized treatment programs in contrast to group training for the head injured population. It may be considered that the group simply was not effective, but some individual changes would detract from this conclusion. In fact, Segalowitz (1986) points out that group results may actually mask individual changes. Therefore, the group process should not be ruled out as an effective learning program for some head injured adults. Crosson (1987) suggests that treatment should not begin until an accurate assessment of the source of the aberrant interpersonal behavior is determined. He maintains that interpersonal
problems may be the result of neurological injury, emotional reaction to the injury, premorbid injury, or some combination. Horton & Barrett (1988) suggest selecting treatment techniques based upon the individual's ability to contribute to his or her treatment. They state that the patient's capacity for self-regulation, intact modalities, and mental skills all be considered. Very little is known about the source of the anger/irritability problems of the current subjects, but this component should be considered in future research.

It is evident that much more organized research is needed to further investigate the possibilities of treatment for various problems encountered by those with head injuries. Those who have suffered as a result of this "silent epidemic" deserve ongoing treatment programs as offered to other dysfunctional groups of individuals. Much more is to be learned through ongoing research about the behavioral treatment prognosis of these varied individuals.
APPENDIX A

MEDICAL UNIVERSITY OF SOUTH CAROLINA INFORMED CONSENT AGREEMENT FOR RESEARCH PURPOSES
Informed Consent Agreement

I, ________________________, do hereby consent to participate in a study to determine the effectiveness of an anger management training program on reducing my anger and irritability. Doctor __________________ has explained orally to me as described below. Dr. Waid will be immediately responsible for my treatment. I fully understand the following:

(a) Procedures to be followed with a designation of those that are experimental. Procedures will include an interview of the prospective subject and a close relative. I will be required to participate in six standardized tests to measure various skills such as memory, attention span, and receptive language. A close relative will be required to fill out two questionnaires concerning my irritable behavior at home and my social role functioning. If I am selected for the study, this relative will be asked to keep a log of my observed irritable and angry outbursts. I understand that I may or may not be selected for training on the basis of the above interview, questionnaires, and testing. If selected for participation in this study, I will be videotaped as I engage in social conversations. I will be asked to attend ten group sessions with nine other closed head injury subjects. I may choose to discontinue my participation at any time without consequence. During the group sessions I may be asked to listen, answer questions, interact with others, role play, and complete homework assignments. I understand that the information obtained about me will be strictly confidential and available only to the research team.

(b) Duration. These sessions will be 1-1/2 hours long, two times weekly for five weeks.

(c) The possibility of discomfort and risks that might arise from the procedure. Some minor psychological discomfort may arise because of dealing with distressing social and family issues. In addition, I may feel uncomfortable while being videotaped. A clinical psychologist will be available to answer any questions during this study and to deal with any distress that I may have.

(d) The possible benefits to be expected from the procedure. Benefits that I might expect include increased knowledge of how to reduce my angry and
irritable outbursts. This change may result in a better feeling about myself and better relations socially, at work, and at home.

(e) **Alternate Methods.** An alternate method of treatment for anger reduction would be one-to-one training with Behavior Modification.

Dr. L. Randolph Waid, 792-4037, has agreed to answer any inquiries that I may have concerning the procedure(s) and has informed me that I may also contact the Medical University of South Carolina Institutional Review Board for Human Research (803/792-4148) directly concerning patient rights. This Board administers the agreement with the United States Department of Health and Human Services covering the protection of human subjects.

I understand that in the event of any injury resulting from the research procedures to the participant, reasonable medical treatment not otherwise covered by third party payments will be available free through the Medical University; financial compensation is not available for medical treatment elsewhere, loss of work, or other expenses. I may contact the Medical University of S.C. Hospital Medical Director (803/792-3932) concerning medical treatment.

I understand that the participant's records of participation in this study are not accessible to the general public and confidentiality will be maintained. Information that may be gained from this study will be used only for research and educational purposes. Information may be published with permission of the principal investigator in medical journals, but the participant's identity will not be revealed. However, identifying information will be available to monitors from the MUSC I.R.B. for Human Research and the U.S. Food and Drug Administration.

It is understood that participation is totally voluntary, and I may choose not to participate. I also understand that I am free to withdraw my consent and discontinue participation at any time. Discontinuation will in no way jeopardize the participant's ability to receive treatment now or in the future at this Institution.

I will receive a copy of this information consent after it has been read, understood, and signed.
Appendix A—Continued

DOCTOR OBTAINING CONSENT

SIGNATURE OF PARTICIPANT

WITNESS

WITNESS
APPENDIX B

DEMOGRAPHIC DATA QUESTIONNAIRE
Demographic Data Questionnaire

NAME ___________________________ DATE OF BIRTH _____ / _____ / _____
ADDRESS ____________________________________________
__________________________________________
RACE ____________________________________________
MARITAL STATUS ____________________________________
SEX _____________________________________________

OTHERS LIVING WITH YOU:
   NAME ___________________________ RELATIONSHIP _________________________
   NAME ___________________________ RELATIONSHIP _________________________
   NAME ___________________________ RELATIONSHIP _________________________

DATE OF INJURY __________________________________________

OCCUPATION: PRIOR TO INJURY __________________________________________
   CURRENT __________________ HOW LONG? __________________

INCOME __________________ SOURCE ________________________________

HIGHEST EDUCATIONAL GRADE COMPLETED __________________________________

TREATMENT OR COUNSELING SINCE INJURY? Yes No
   IF SO, WHAT KIND? _____________________________________________
   HOW LONG? ___________________________________________________
APPENDIX C

MODIFIED KATZ ADJUSTMENT SCALE - RELATIVE FORM (KAS-R)
PLEASE NOTE:

Copyrighted materials in this document have not been filmed at the request of the author. They are available for consultation, however, in the author's university library.

These consist of pages:

55-57, MODIFIED KATZ ADJUSTMENT SCALE - RELATIVE FORM (KAS-R)

59-60, MODIFIED KAS-R ITEMS COMPRISING THREE TARGET CATEGORIES

62-63, KATZ ADJUSTMENT SCALE - RELATIVE FORM (KAS-R) SOCIAL ROLE FUNCTIONING

65, IRRITABILITY/ANGER DIARY

67-84, OUTLINE - GROUP ANGER AND IRRITABILITY CONTROL PROGRAM BASED ON NAVACO AND FEINDLER METHODS
### Modified Katz Adjustment Scale (KAS-R)

<table>
<thead>
<tr>
<th></th>
<th>1 almost never</th>
<th>2 sometimes</th>
<th>3 often</th>
<th>4 almost always</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Acts as if he has no interest in things</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>2. Feels that people don't care about him</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>3. Threatens to tell people off</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>4. Gets angry and breaks things</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>5. Acts as if he has no control over his emotions</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>6. Laughs or cries at strange times</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>7. Has mood changes without reason</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>8. Has temper tantrums</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>9. Gets very excited for no reason</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>10. Acts as if he doesn't care about other people's feelings</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>11. Thinks only of himself</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>12. Bossy</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>13. Argues</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
</tr>
</tbody>
</table>
### Modified Katz Adjustment Scale (KAS-R)

<p>| | | | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>almost never</td>
<td>sometimes</td>
<td>often</td>
</tr>
<tr>
<td>14. Gets into fights with people</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>15. Is cooperative</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>16. Does the opposite of what he is asked</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>17. Stubborn</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>18. Curses at people</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>19. Deliberately upsets routine</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>20. Resentful</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>21. Gets annoyed easily</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>22. Critical of other people</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>23. Lies</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>24. Gets into trouble with law</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>25. Stays away from people</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>26. Prefers to be alone</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>27. Behavior is childish</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
### Modified Katz Adjustment Scale (KAS-R)

<p>| | | | | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td><strong>28. Very quick to react to something you say or do</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>29. Acts as if he's confused about things; in a daze</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>30. Acts as if he can't get certain thoughts out of his mind</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>31. Talks without making sense</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>32. Refuses to speak at all for periods of time</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>33. Speaks so low you cannot hear him</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>34. Talks about how angry he is at certain people</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>35. Says the same thing over and over again</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>36. Talks about big plans he has for the future</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>37. Gives advice without being asked</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
APPENDIX D

MODIFIED KAS-R ITEMS COMPRISING
THREE TARGET CATEGORIES
Modified KAS-R Items Comprising Three Target Categories

**Belligerence**

3. Threatens to tell people off.
4. Gets angry and breaks things.
8. Has temper tantrums.
15. Is not cooperative.
17. Stubborn.
18. Curses at people.
28. Very quick to react to something you say or do.

**Negativism**

10. Acts as if he doesn't care about other people's feelings.
11. Thinks only of himself.
16. Does the opposite of what he is asked.
19. Deliberately upsets routines.
20. Resentful.
22. Critical of other people.
23. Lies.
24. Gets into trouble with law.
34. Talks about how angry he is at certain people.
General Psychopathology

1. Acts as if he has no interest in things.
2. Feels that people don't care about him.
5. Acts as if he has no control over his emotions.
6. Laughs or cries at strange times.
7. Has mood changes without reason.
9. Gets very excited for no reason.
25. Stays away from people.
26. Prefers to be alone.
27. Behavior is childish.
29. Acts as if he is confused about things and in a daze.
30. Acts as if he can't get certain thoughts out of his mind.
31. Talks without making sense.
32. Refuses to speak at all for periods of time.
33. Speaks so low you cannot hear him.
35. Says the same thing over and over again.
36. Talks about big plans he has for the future.
APPENDIX E

KATZ ADJUSTMENT SCALE - RELATIVE FORM

(KAS-R) SOCIAL ROLE FUNCTIONING
<table>
<thead>
<tr>
<th></th>
<th>1 is not doing</th>
<th>2 is doing some</th>
<th>3 is doing regularly</th>
<th>4 does not apply</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Helps with household chores</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2. Visits his friends</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3. Visits his relatives</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4. Entertains friends at home</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5. Dresses and takes care of himself</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>6. Helps with the family budgeting</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>7. Remembers to do important things on time</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>8. Gets along with family members</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>9. Goes to parties and other social activities</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>10. Gets along with neighbors</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>11. Helps with family shopping</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>12. Helps in the care and training of children</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>13. Goes to church</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>14. Takes up hobbies</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>1 is not doing</td>
<td>2 is doing some</td>
<td>3 is doing regularly</td>
<td>4 does not apply</td>
</tr>
<tr>
<td>----------------</td>
<td>----------------</td>
<td>-----------------</td>
<td>----------------------</td>
<td>------------------</td>
</tr>
<tr>
<td><strong>15. Works</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>16. Supports the family</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
APPENDIX F

IRRITABILITY/ANGER DIARY
**IRRITABILITY/ANGER DIARY**

DAY ____ DATE __________

DIRECTIONS: MAKE ENTRIES FOR EACH HOUR -- SEE BOTTOM FOR ENTRY NUMBERS

<table>
<thead>
<tr>
<th>Column #</th>
<th>1</th>
<th>COMMENTS &amp; OBSERVATIONS</th>
</tr>
</thead>
<tbody>
<tr>
<td>7 am</td>
<td></td>
<td></td>
</tr>
<tr>
<td>8 am</td>
<td></td>
<td></td>
</tr>
<tr>
<td>9 am</td>
<td></td>
<td></td>
</tr>
<tr>
<td>10 am</td>
<td></td>
<td></td>
</tr>
<tr>
<td>11 am</td>
<td></td>
<td></td>
</tr>
<tr>
<td>12 noon</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1 pm</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2 pm</td>
<td></td>
<td></td>
</tr>
<tr>
<td>3 pm</td>
<td></td>
<td></td>
</tr>
<tr>
<td>4 pm</td>
<td></td>
<td></td>
</tr>
<tr>
<td>5 pm</td>
<td></td>
<td></td>
</tr>
<tr>
<td>6 pm</td>
<td></td>
<td></td>
</tr>
<tr>
<td>7 pm</td>
<td></td>
<td></td>
</tr>
<tr>
<td>8 pm</td>
<td></td>
<td></td>
</tr>
<tr>
<td>9 pm</td>
<td></td>
<td></td>
</tr>
<tr>
<td>10 pm</td>
<td></td>
<td></td>
</tr>
<tr>
<td>11 pm</td>
<td></td>
<td></td>
</tr>
<tr>
<td>12 midnt</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Column #1: DEGREE OF IRRITABILITY/ANGER DESCRIBED BY:

0 = No irritability or anger

1 = Irritable ................. Includes: edgy, curt, grouchy behavior, may give sarcastic answers, complaining, unpleasant.

2 = Very Irritable ............ Escalation from irritable, including: arguing about minor things, refusal to cooperate, may "pout" or be sullen, may "bite your head off".

3 = Angry ...................... Includes: arguing loudly, may be unreasonable, insulting, accusatory, may slam doors, shake fist.

4 = Very Angry .................. Escalation of angry, including: yelling, swearing, name calling, throwing things, "out of control".

5 = Physical aggression ........ Includes attempted aggression or physical contact such as pushing, slapping, throwing at someone.

6 = Not observed ................ Enter when you are not around subject.
APPENDIX G

OUTLINE - GROUP ANGER AND IRRITABILITY

CONTROL PROGRAM BASED ON NAVACO

AND FEINDLER METHODS
Outline - Group Anger and Irritability Control Program

Based on Navaco and Feindler Methods

Session 1:

Introduction: How to participate, importance of attending every session and doing any homework assignments, required participation in role playing (explain), take notes, if necessary.

Rationale: To teach a variety of techniques that will assist a member in coping with frustration when confronted with conflict/stressful situations at home, work, or socially.

Discussion and Educating:

I. Assessment of Anger Problems. Anger has a variety of adaptive and maladaptive functions.

Positive: 1. An energizer - mobilizes body's resources for self-defense.

2. Way to express tension and communicate negative feelings to others.

3. Serves as a cue to tell us when there is something unjust or frustrating.

4. Enables us to take charge and assert our will or interest.

Negative: 1. Disrupts our thoughts and actions.
2. Way of defending ourselves (pride when hurt or embarrassed).

3. Can lead to or instigate aggression.

4. Way of promoting an impression of ourselves.

Ask for examples - personal testimony.

More discussion - determinants of anger arousal:

A. **External events**: Frustration, annoyance, insult, inequity, abuse, etc.
What particular aspects of situations trigger anger arousal? Are there any particular forms of provocation that are most often encountered and which easily arouse anger? How reasonable is it to be angry when these events occur?

B. **Internal factors**: Cognitive (appraisal, expectation, self-statements), try to help the subjects to become aware of the many ways in which their thoughts influence their feelings. What do these provocation events mean to the person? How do they interpret the behavior of others? Does their anger come from how they expect others to behave? Are these expectations unreasonable? What kinds
of things do they say to themselves when provocations occur?

C. **Affective:** (Tension, temperament, empathy) Is a person tense or agitated? Look for non-verbal cues as indicators. Do they feel "on edge," "wound up," or "uptight?" Any problems with sleeping? Any physical problems related to tension like headaches, chest pains, nervous stomach, or high blood pressure? How capable are they at laughing at themselves or seeing the less serious side of life? Are they sensitive to the feelings of others?

D. **Behavioral factors:** (Antagonism, hostility, avoidance) How does the subject customarily respond when provoked in a given situation? How does their behavior influence how they feel? How do others respond to their reactions? How capable are they at communicating their feelings to others? Are there any signs of positive assertiveness?

Discussion of the above with the subjects giving their personal situations. Have the subjects "run
a movie" of their anger experiences of choice to relive their thoughts and feelings (with their eyes closed).

**Homework:** Give the subjects small notebooks. Explain carefully, answer questions, and give examples. Subjects are to keep a diary of their anger experiences. Keep a log with the five W's. The five W's are (1) when (the date), (2) where, (3) with whom, (4) why, and (5) what happened. The rationale of the diary is that (1) it is a self-monitoring device that will provide each individual with an accurate picture of how they handle the conflict, (2) a learning device regarding what sets them off and an opportunity to report situations that were difficult and those that were handled well, and (3) provide scripts for in-session role playing.

**Session 2:**

Check for homework, discuss individual cases, answer questions, utilize behavioral rehearsal or role play when subjects give an individual situation. Encourage all to participate and offer helpful suggestions. Second half of the session introduce relaxation training, dim the lights and have the subjects close their eyes, go through the full set of muscle
relaxation (see below), emphasize the importance of breathing control in achieving relaxation.

Jacobsonian relaxation:

1. Clench the right fist, hand and forearm. Hold 10 seconds, then relax for all muscle groups.
2. Clench the left fist, hand and forearm.
3. Clench both fists, hands and forearms.
4. Bend both elbows, biceps.
5. Frown forehead and scalp.
6. Squint eyes and face.
7. Clench teeth and jaw.
8. Push head back and forward.
9. Shrug the shoulders and back.
10. Take a deep breath, hold, and push.
11. Tense stomach muscles as if you were preparing for a blow to the stomach.
12. Tense buttocks and thighs by extending legs straight out, curling feet upward, pushing buttock muscles downward.
13. Tense legs and calf muscles by extending like straight out and curling feet downward.
14. Point toes forward.
15. Take a deep breath, hold, and push as you exhale, saying "Relax" to yourself, and notice how the relaxation increases.
16. Repeat the sequence.

Encourage practicing of relaxation technique at home, not just when feeling tense but anytime. Ask subjects to continue to keep their five W's log of anger-provoking situations.

Session 3:

Turn in their notebooks. Take suggestions as to other ways of relaxing such as long walks and hot baths. Assist the subjects two or three at a time to relax using the techniques learned in the last session. While the subjects are still relaxing, have them imagine a quiet, mellow, tranquil scene. After having them imagine that scene for 30 seconds, present a minor annoyance to subjects based on their personal experiences as logged. For example, dialogue might be: "Just continue relaxing like that. Now I want you to imagine the following scene." And present a scene as described by each subject. "See it as clearly and vividly as you can. If you feel the least bit angry as you imagine it, signal me by raising the index finger of your right hand." If the subjects do not signal anger for 15 seconds, then instruct them to "shut it off and just continue to relax - you are doing very well." If anger is signalled, instruct subject as follows: "You have signalled anger. Now see yourself
coping with the situation. See yourself staying composed, relaxing, settling down. Continue to imagine the scene, but see yourself handling it effectively."

Bring the subjects back to the tranquil scene for another 30 seconds of imagination and continued relaxation. Then have them take a deep breath before opening eyes. Discuss any difficulty they had relaxing. Obtain feedback from others on their observations. Continue with all the subjects until everybody has practiced "imaging."

Practice revealing feelings such as "I'm beginning to feel tense and frustrated" and help the subjects identify why they feel this way (stomach butterflies, muscle tension, rigid posture, feeling warm, hands clenched, etc.). Role play as the time is available, with emphasis on identifying their feelings such as "how did you feel when he said that?" Give them a brief relaxation exercise of closing their eyes, taking some deep breaths, and counting backwards from 10.

Session 4:

Collect and review the homework logs, review the relaxation techniques learned in the last session, and introduce the concept of asserting their rights. Conduct a discussion about the subjects' rights with regard to rules, laws, and authority figures and make
their family, school, community, and residential agent safe. Ask the group members to generate a list of rights, things to which they feel they are entitled. These might include:

- being spoken to in a civil tone of voice.
- they have a right to be listened to.
- they have a right to explain their side of the story before any judgment is passed.
- they have a right to their own property.

Further this discussion by prompting a listing of the rights of others in their home, workplace, or community. Stress the importance of treating others like you would like to be treated. Distinguish between passivity, assertion, and aggression by providing subjects with a continuum of responses to these rights:

1. **Passive**: Letting someone take away your rights.
2. **Assertive**: Standing up for your rights but at the same time respecting other persons' rights.
3. **Aggressive**: Demanding your rights with no regard for the other persons' rights.

Introduce assertion techniques as alternative responses to aggression. Instruct group members to use these assertion techniques in response to provoking stimuli that require action. These responses are designed to de-escalate conflict situations while maintaining rights and an appropriate level of self-control.
1. **Broken record**: This response involves a calm, monotone repetition of what you want. For example, "Please give me my radio back." The subject is trained to continue to repeat the response in the same calm manner until the property is returned. There is no escalation in terms of increased voice volume, threatening gestures, etc.

2. **Empathic assertion**: This is a form of assertion that involves sensitive listening on the subject's part to the other person's feelings. Particularly useful for dealing with authority figures who are angry. For example, a parent or spouse might say, "This room is a mess. I can't believe you're such a slob. Start cleaning it up." And the subject might say, "I know you're upset with the mess, but I just got back and I haven't had time to clean it yet." Discuss how the parent or spouse in this example would have felt better just because his or her feelings were heard.

3. **Escalating assertion**: This is a sequence of responses that increase in assertiveness to obtain a desired outcome. Begin with a minimal assertive response and escalate to a final response in which a consequence is given to the other person for non-compliance to the original demand. For
example, "Please return my radio." The second request might be: "I asked you to return my radio." The third request would be: "I want my radio now." Fourth request: "If you don't give me my radio, I will go tell my parents, and they will come and get the radio for me."

4. **Fogging**: This technique is used to short circuit an aggressive verbal conflict by confusing the provoker with an agreement. For example, the provoker says, "You are stupid," and the subject responds, "You're right, I am stupid." Explain to the group members that such an agreement does not indicate truth but rather a way to turn things into a joke.

Then review the four assertion techniques of (1) broken record, (2) empathic assertion, (3) escalating assertion, and (4) fogging. Have subjects role play several conflict situations from their log books utilizing the various assertion techniques provided.

Session 5:

Collect and review homework logs and introduce the concept of ABC's (antecedents, actual behavior, consequences).

1. **Provoking stimulus or antecedent**: What gets the subject angriest? Situational variables are
assessed in terms of what is going on in the environment (overt antecedent) and physiological states of fatigue, hunger, etc. (covert antecedent).

2. **Actual behavior or reaction:** How do you know when you are angry? (Negative statements to self or with intention to harm another person, or physiological cues such as muscle tension, angry stares, etc.)

3. **Consequences:** Ask the subjects, "What happened to you as a result of not controlling your anger? Did you get into trouble?" Explain to them they need to make an attempt to alter (2), or their actual behavior. Try to get them to modify their appraisal of the significance of someone's behavior, the intentions of others, or alter any maladaptive expectations of the behavior of others, themselves, or the consequences of the situation. Ask for examples and determine how they construed the situation (preconceptions of the event, how they interpreted others' behavior, how they justified their own actions), and give particular attention to their internal dialogue before, during, and after the incident.

Have the subjects tune in to their anger antecedents as
previously discussed and review the concept of A's, B's, and C's as they relate to poor self-control.

1. Provide distinctions between overt and covert cues of anger and aggression, asking the subjects, "How do you know when you're angry? How do you know when another person is angry?" Have group members identify both internal (physiological or cognitive self-statements) and external (observable motor behavior) cues or antecedents to anger.

2. Use examples from the subjects' logs and prompt them to identify the ABC's of a given anger-provoking situation.

Session 6:

1. Review:
   
   A. The four assertion techniques: broken record, empathic assertion, escalating assertion, and fogging.

   B. Prompt subjects to tell what self-control techniques they used during the week to control their anger or resolve conflict situations.

2. Reminders in self-instruction training:
   
   A. Define reminders as things we say to ourselves to guide our behavior or to get us to remember certain things.
B. Describe how reminders can be useful in situations in which the subject has to try hard and keep very calm.

C. Have the group members generate a list of reminders that they use in those pressure-type situations. Write these on a blackboard for all to see. Some possible self-instructions include (1) slow down, (2) take it easy, (3) take a deep breath, (4) cool it, (5) chill out, (6) ignore this. Have the group members think ahead to a potential difficult conflict situation and how they may use some of these self-statements to deal with that potential situation.

3. Give each group member an index card and assist him or her in writing down three reminders that fit for him or her. Instruct them how to take the cards with them and keep them, referring back to them as much as needed before the next session.

4. More role playing, giving examples of passive, assertive, and aggressive responses to each.

5. Remind the subjects to continue to keep their logs for further examples.

Session 7:

1. Review the anger control techniques taught so far:
A. **Brief relaxation techniques:** deep breaths, backward counting, and imagery/pleasant scene.

B. **Progressive relaxation:** tensing and relaxing antagonistic muscle groups.

C. **Assertion techniques:** broken record, fogging, empathic and escalating assertion.

D. **Self-instruction technique/training reminders.**

E. **Thinking ahead.**

2. Collect the logs and prompt the subjects to identify what anger control techniques they used that week to resolve the conflict or an anger-provoking situation.

3. Introduce the concept of **communication of feelings.** Effective provocation management requires that the person knows what to say. Take an example and then role play to demonstrate or model how to express anger constructively. Have the subjects rehearse the recognition and expression of anger and role play. Emphasize listening to what others are trying to say to them and recognizing their own feelings. Use examples to discuss how certain responses make the subjects or others feel hurt, sad, angry, confused, etc.
Appendix G—Continued

4. Emphasis on staying task-oriented. Help the subjects to stay focused on the desired outcomes of anger situations. This means not taking things personally, knowing what one wants to get out of a situation, and working toward that goal. Anger situations should be seen as problems that need a solution. Help the subjects discover strategies that will achieve constructive resolution. As a helpful technique, videotaping may be used for the role playing situations so that it can be played back and comments can be made by other group members.

5. Tell the group members to continue to keep their logs.

Session 8:

1. Review:

A. Relaxation techniques covered.

B. Assertion techniques.

C. Self-instruction training or reminders.

D. Collect logs and answer questions the subjects may have.

E. Review communication of feelings. Ask for examples of subjects expressing their feelings during the week and the response of others to their expression.
2. Hand out examples of anger management self-statements rehearsed in training. Go over self-statements with students. Have them practice saying them out loud and then to themselves.

   A. Role play provocative situations and have self-statements made for all to hear. Repeat the same role play situation with time for the subject to close his or her eyes and make self-statements cognitively. Videotape role playing between subjects, reviewing any comments in that session.

Session 9:

1. Review:

   A. Concept of ABC's: antecedents or provoking stimuli, behavior (the individual's actual reaction to the provoking stimuli which can involve a variety of cognitive, physiological, overt, or covert responses), and consequences or the events that happen as a result of controlling or not controlling anger. Consequences can be either rewarding or punishing.

   B. Brief relaxation techniques: deep breaths, backward counting, and imagery.

   C. Progressive relaxation.
Appendix G—Continued

D. Assertion techniques: broken record, empathic assertion, escalating assertion, and fogging.

E. Reminders: things we say to ourselves, overt or covert, to guide our behavior or to get us to remember certain things.

F. The communication of feelings, the consideration of the feelings of others.

G. The examples of anger management self-statements (see handout). Review the rationale for using self-control techniques, placing special emphasis on the fact that the responsibility for appropriate behavior and consequences, positive and negative, lies with the individual subject in that he or she makes the choices. Emphasis on assuming responsibility for their own behavior and not blaming their behavior on others.

Session 10:

In addition to all of the above listed for Session 9, the participation of the subjects in the study should be discussed, and they should be thanked for their cooperation. Time should be left in the last half hour to 45 minutes for a small party with soft drinks and chips. Plans should be made for getting the Modified
Katz and the diary forms to their relatives, and subjects should be given diaries to complete.
REFERENCES


Mandleberg, I. A. (1976). Cognitive recovery after severe head injury 3. WAIS Verbal and Performance IQs as a


Panting, A., & Merry, P. H. (1972). The long-term rehabilitation of severe head injuries with particular reference to the need for social and medical support for the patient's family. Rehabilitation, 38, 33-37.


