Pennsylvania at Eastern Pennsylvania Psychiatric Institute, where he is Coordinator of the Schizophrenia Treatment Program. His clinical and research interests include behavioral family therapy and social skills training for schizophrenia, the assessment of social competence in mental illness, and posttraumatic stress disorder.

KAREN C. ROGERS (B.A.) is a member of the Department of Psychology, University of Virginia, Charlottesville. Her research and clinical interests focus on family conflict and its impact on children.

BRUCE A. THYER (Ph.D.), School of Social Work, University of Georgia, Athens, has published in the areas of promoting safety belt use, the nature and treatment of anxiety disorders, and the applications of behavior analysis within the field of social work.

ROGER M. TUDOR (Ph.D.) is Professor in the Department of Psychology, Georgia Southern University, Statesboro. His major research interests include verbal behavior, instructional design, computer-assisted instruction, and the application of behavior analysis to education.

S. LLOYD WILLIAMS (Ph.D.) is Associate Professor of Psychology, Lehigh University, and Director of the Lehigh phobia program, Bethlehem, Pennsylvania. His research interests center on the procedures and cognitive mechanisms of therapeutic change in phobia, especially agoraphobia.

ADOLESCENT ANGER CONTROL: REVIEW AND CRITIQUE

EVA L. FEINDLER
Long Island University/C. W. Post Campus
I. INTRODUCTION

A. Problems in Anger and Aggression

Recent reviews of adolescent behavior therapy have indicated that the number and the nature of changes and challenges that occur simultaneously during adolescence require the development of effective coping strategies for adaptive functioning (Peterson & Hamburg, 1986). The authors suggest that only in a few areas, for example, crime and delinquency, do adolescents engage in problem behaviors more frequently than other age groups. Indeed, Snyder and Patterson (1987) indicate that between 15% to 35% of all males are arrested before the age of 18 for a variety of offenses, although the majority are arrested only once. Certainly, antisocial behaviors, in particular, conduct disorder and delinquency, peak in middle to late adolescence and portend continued adjustment problems in adulthood. Kazdin (1987) concluded that prevalence rates are high and that among adolescents more than 50% admit to theft, 35% admit to assault, 45% admit to property destruction, and 60% engage in other antisocial behavior. These figures represent a critical clinical area requiring the development of effective prevention and intervention strategies.

For this antisocial population, the use of violence and aggression increases during the adolescent years (Peterson & Hamburg, 1986) and is sustained throughout adulthood. In fact, longitudinal studies have indicated that the relative level of aggressive behavior that a child or adolescent displays in interpersonal contexts remains fairly stable over time (Olweus, 1984). The results reported by Olweus (1984) suggest that important determinants in this continuity of aggressive behavior are to be found in relatively stable, individually differentiated reaction tendencies or motive systems. These personality variables may compose a cognitive component that in highly aggressive individuals may involve a biased perception of situational events. This discriminating characteristic has been supported by the extensive work of Dodge (1985) and his colleagues, who have studied attributional biases in aggressive children. It seems that the persistently aggressive child is biased toward interpreting events as evidence that peers are hostile and provocative and that they do not like him or her. Further research has indicated that these deviant information-processing mechanisms and hostile biases may be the result of early socializing and conditioning experiences.

There has been a growing consensus that antisocial children and adolescents have parents who lack appropriate family management and parenting skills (Loeber & Dishion, 1984; Patterson, 1986). Indeed, Eron and Huesmann (1984), in a 22-year follow-up of aggressive children, suggest that the major productive factor in adult aggression is the early use of extensive physical punishment. Other research has shown that parents' failure to use consistent and contingent reinforcement and failure to teach reasonable levels of compliance set in motion a process of coercive interactions within the family (Patterson, 1986). Poor and erratic disciplinary practices contribute directly to the development of aggressive behavior patterns, (a) by failing to label, track, and "consequate" inappropriate and/or antisocial behaviors, and (b) by modeling and reinforcing aggressive, impulsive modes of problem solving and interpersonal communication (Snyder & Patterson, 1987). Aggressive responses to family members may then be considered instrumental in obtaining desired outcomes.

Often then, the aggressive child or adolescent experiences peer rejection, academic failure, and lowered self-esteem. He or she continues to be persistently aggressive in interactions with both peers and adults and is at risk for social rejection (Dodge, 1985). Arguments with parents and siblings may increase (Montemayor & Hanson, 1985) and the adolescent may develop other significant behavior problems. School difficulties such as truancy, increased detentions and academic detention, substance abuse, and adolescent health problems may all be linked to aggressive and antisocial behavior patterns.

B. The Role of Anger in Aggressive Behavior Patterns

Although there have been numerous treatment strategies employed in the modification of aggressive behavior (see Bornstein, Hamilton, & McFall, 1981; Goldstein, Glick, Reiner, Zimmerman, & Coulty, 1987), reductions in adolescent aggression have generally not been maintained following program termination. Feindler and Ecton (1986), in a review of factors contributing to equivocal results reported for contingency management approaches to delinquent behaviors, emphasize the following impediments: (a) difficulty in completing peer reinforcement contingencies, (b) lack of powerful reinforcers, (c) low-frequency or covert aggressive behaviors that go undetected and un-consequated, and (d) inconsistent behavior change agents. Further, developmental changes that occur during adolescence (namely, increased autonomy, separation from family, increased stress) may undermine the effectiveness of external reinforcement contingencies on interpersonal behavior.

In addition to these shortcomings, traditional behavioral approaches to aggression management have overlooked the direct treatment of high anger arousal, which may accompany impulsive and explosive behavior. Although aggressive behavior need not be accompanied by anger arousal, most theorists agree that anger often acts as a determinant of aggressive behavior. Anger has been defined as the drive or motive behind aggressive behavior.
and as the subjective experience that accompanies aggressive impulses (Averill, 1983). Berkowitz (1983), in a reformulation of the frustration-aggression hypothesis, proposed that anger and the interpretation of aggressive cues mediate the relationship between frustration and aggression. In this conceptualization, like that of Novaco's (1975, 1986), cognitive processes play a major role in determining what experience will be made to aver-sive/provocative stimuli. For Novaco, cognitive processes—namely, detection of arousing events, appraisals of provocation cues, expectations and underlying belief systems, and the physiological arousal experienced during anger arousal—have a direct impact on response to provocation. (The reader is referred to Novaco, 1986, for a detailed review of the conception of anger in theories of aggression.)

Although the relationship between anger and aggression is not always a clear one, and although anger is a hypothetical construct difficult to target for behavioral intervention, it is proposed that a primary focus in the treatment of aggressive adolescents should be on anger control. In line with developmental striving for autonomy and the need for increasing self-control of emotions, the appropriate regulation of the anger arousal that often accompanies aggressive behavior and the development of alternative, prosocial experiences to interpersonal provocation seem like logical therapeutic goals. Because ample research has demonstrated that the appraisal of situation events as provocation stimuli influences the magnitude of aggressive behavior, and that aggressive adolescents have hostile attribution biases (Dodge, 1985; Lochman, 1984), the cognitive component of anger arousal must be explored. Additionally, Berkowitz (1983) has suggested that cognitive processes are also responsible for the absence of overt aggression because of their inhibitory aspects. Clearly, explosive adolescents seem to be lacking inhibitory self-control skills. Finally, because expressive physiological arousal may interfere with prosocial skills performance in interpersonal situations, the effective management of the physiological determinants of anger arousal must also be explored.

The cognitive-behavioral approach to anger control training has developed since the early work of Novaco (1975) and also since Meichenbaum's (1985) stress inoculation model, in which anger was conceptualized as an affective stress reaction. Although the skills acquisition and application approach predominates, and although cognitive and physiological determinants are still emphasized, adolescent anger control includes several additional features designed to ameliorate the social, self-management, and problem deficiencies found in this population. In addition to arousal reduction and cognitive restructuring components, the adolescent anger control program designed and evaluated by Feindler and her colleagues (Feindler, 1979, 1988; Feindler & Ecton, 1986; Feindler, Ecton, Kingsley, & Dubey, 1986; Feindler, Marriott, & Iwata, 1984) includes the development of self-observation and self-management skills, discrete problem-solving skills, assertiveness, and prosocial responses to provocation.

Initial results of program effectiveness have been encouraging; however, generalization and maintenance of treatment effects have yet to be demonstrated. Further, evaluations of discrete treatment components, as well as therapeutic formats, are needed to maximize treatment outcomes for the aggressive adolescent population. The remainder of this chapter will focus on a review and critique of anger control training, and directions for future research and intervention will be enumerated.

## II. ASSESSMENT ISSUES

### A. Diagnostic Decisions

To maximize treatment efficacy and efficiency, it is important to determine a priori which clients might benefit from which treatment procedures. Given the rather bleak outlook that Kazdin (1987) has projected in terms of prognoses for antisocial children and adolescents, it behooves both clinicians and researchers not only to consider alternative forms of treatment, as Kazdin has suggested, but to more closely examine the very heterogeneity of the aggressive adolescent population. There are certain characteristics and behavioral patterns of aggressive adolescents that require assessment in the initial screening for anger control training.

Although anger in all theories is understood as being neither necessary nor sufficient for aggressive behavior to occur, most diagnostic decisions regarding appropriateness of anger control revolve around the topography and intensity of aggressive behaviors. Snyder and Patterson (1987), in a case against homogeneity in descriptions of juvenile delinquents, highlighted major differences in the delinquent population in terms of (a) recidivism versus nonrecidivism, (b) property versus person offenses, (c) status versus nonstatus offenses, (d) covert (stealing, fire setting) versus overt antisocial behavior, and (e) aggressive (unsocialized) versus delinquent (socialized) antisocial behavior. Each of these differences may have direct implications for treatment decisions; however, little is known about treatment discrimination. In terms of the last issue and anger control training, a further look at aggressive behavior is in order.

In an earlier review of behavior modification for adult aggression, Bornstein, Hamilton, and McFall (1981) indicated a need for the development of subcategories of aggressive behavior patterns as there appear to be very different forms of temper loss and violence. Although the relative level of aggressive behavior that a child or adolescent displays in interpersonal contexts is fairly stable over time (Ollwecus, 1984), there may be important differences in adolescent acting out within different types.
provocative stimuli, to inhibit direct aggressive behavior, and to implement the cognitive and emotional mediators of his or her aggressive response to provocative stimuli, to inhibit direct aggressive behavior, and to implement appropriate prosocial and problem-solving skills. The internalizing adolescent may have concurrent anxiety or depression and may need to dispute irrational thinking styles, to reduce physiological arousal, and to learn assertive responses to provocation.

The second dimension, trait versus reactive aggression, reflects the degree to which the aggressive behaviors either are predictable and perhaps planned responses to provocation or are impulsive responses characterized by a lack of cognitive processing of the antecedent-response relationship. According to Novaco (1986), premeditated aggression is thought to be fueled by anger as it is enacted as vengeance or retaliation to achieve retribution. However, this type of anger, which may be replete with the attributional biases reported by Dodge (1985) and with preoccupation and extensive negative ruminations concerning the aversive experiences, differs greatly from the explosive temper losses adolescents display in reaction to perceived provocations. Intuitively, it would seem that, although the anger level for both subcategories may be quite intense, there seem to be clear differences in latencies, topography of anger expression, physiological arousal, and impulse control. Only continued research on the distinctions between various types of anger and aggressive patterns will help to further delineate subgroups and to direct treatment efforts. Clinical impressions indicate that anger control strategies are more effective with the impulsive and reactive adolescent who requires skills acquisition and application with appropriate cognitive mediation during provocation; however, reliable data are needed to support this general conclusion.

Another issue related to maximizing the success of the client-treatment match is clinical diagnoses of aggressive adolescents. Although anger and aggression are not problems formally identified by diagnostic category, there are a range of clinical conditions that have anger as a dynamic element (Novaco, 1986). Most adolescents responding to anger control treatment have been diagnosed as either conduct disordered or oppositional defiant disordered according to DSM-III-R criteria. An essential feature of the conduct disorder is a repetitive and persistent pattern of antisocial conduct in which the basic rights of others are violated for at least six months. Of particular relevance is the subtype of the solitary aggressive in which the essential feature is the predominance of aggressive physical behavior toward white and peers. The essential feature of oppositional defiant diagnoses is a pattern of negativistic, hostile, and defiant behavior without the more serious violations of rights of others. Clearly, the discrete criteria of "often loses temper," "often argues with adults," and "often angry and resentful" describe many adolescents with anger control difficulties.

Other diagnostic categories represented by adolescents who have benefited from anger control include attention deficit disorder, characterized by inattention, impulsivity, and hyperactivity, and intermittent explosive disorder, which is characterized by discrete episodes of loss of control, of aggressive impulses leading to assault or destruction of property. In addition, there may be older adolescents who have been diagnosed as antisocial personality disordered who evidence a chronic pattern of truancy, delinquency, persistent lying, and other antisocial acts. Certainly psychologists engaged in the intake and screening process of adolescents in therapy should consider the incorporation of anger control interventions for adolescents presenting any of the above anger/aggression patterns. However, it is premature, given the lack of empirical support, to suggest on which types of diagnostic categories the anger control approach has the most impact.

Other behavioral data of major relevance, obtained from either an interview or a structured assessment, include those on level of cognitive functioning and specific cognitive processing difficulties. Because many anger control strategies emphasize the cognitive appraisal of precipitating events, self-guiding verbalizations, verbal problem-solving skills, and other self-control skills, cognitive functioning is a critical variable. Although the majority of published anger control studies have targeted adolescents of normal intelligence, it is not clear whether or not lower functioning or learning disabled adolescents can acquire the target skills. It may be that, with some changes in program format and in operative contingencies for skills acquisition, adolescents who evidence borderline or mild retardation or particular visual or auditory processing deficits will also benefit from intervention. Because the effectiveness of the cognitive-behavioral skills approach rests with the adolescent's ability to remember the cognitive skills, to sequence the perception of events and his or her response to them to inhibit anger arousal and aggressive responding, and to thoughtfully select an appropriate solution to an interpersonal problem, the determination of cognitive functioning is imperative. Again, empirical support for these clinical "hunches" is certainly needed.

B. Measurement of Anger and Aggression Problems

1. Self-Report Anger Inventories

As anger has been defined as a subjective experience, the use of self-report inventories in the assessment of anger seems logical. Although some of these
recently developed, behaviorally focused paper-and-pencil questionnaires have yet to be validated with either normal or clinical adolescent samples, several seem appropriate for use as either diagnostic or treatment evaluation measures.

The earliest one, the Anger Provocation Inventory, was developed by Novaco (1985) for his initial evaluation of anger control training. This inventory includes 90 statements describing provocative incidents, which the person rates, on a five-point Likert scale, for the degree of anger he or she would experience had the incident actually happened. Initial item analyses showed the inventory to be internally consistent for a college student sample; however, there were strong sex differences across items (Novaco, 1975). Further research with a college student population indicates strong correlations of this inventory with the Irrational Beliefs Test (Zwemer & Deffenbacher, 1984) and supports the distorted cognitive attribution dimension of anger control difficulties. Unfortunately, a large portion of the items may not be functionally relevant for an adolescent population (i.e., “You are driving to the airport and are forced to wait for a long train.”).

Spielberger and his colleagues (Spielberger et al., 1985) have devoted significant psychometric research to the development of the State-Trait Anger Inventory and the Anger Expression Scale. The STAXI (Spielberger, 1988) consists of 44 items combined to form six scales and two subscales. These consist of (a) state anger, a 10-item scale that measures the intensity of angry feelings at a particular time; (b) trait anger, a 10-item scale that measures individual differences in disposition to experience anger (this scale includes two subscales: angry temperament and angry expression); (c) anger-in, an eight-item scale that measures the frequency with which angry feelings are held in or suppressed; (d) anger-out, an eight-item scale that measures how often an individual expresses anger toward other people or objects in the environment; (e) anger control, an eight-item scale that measures the frequency with which an individual attempts to control the expression of anger; and (f) anger expression, a research scale that provides a general index of the frequency with which anger is expressed regardless of the direction of expression. Respondents rate themselves on a four-point Likert scale that assesses dimensions of either intensity or frequency. Norms for the first four scales have been obtained from a sample of 2,469 male and female high school students with an age range of 12 to 18 years (Spielberger, 1988). Although the items reflect a personality trait approach, given the methodological rigor of the development of this inventory and its extensive use in clinical research on anger and health, the use of the STAXI with adolescent clinical populations is recommended. It is easy to administer, easy to score, and, therefore, easy to incorporate when evaluating anger control training.

Another self-report inventory, yet to be published, also looks quite promising. Hoshmand and Austin (1985) developed a 128-item Cognitive-Behavioral Anger Control Inventory to examine situations engendering anger reactions and individual response styles. There are situation subscales (seeing others abused, intrusion, personal devaluation, betrayal of trust, minor nuisance, control/coercion, verbal abuse, physical abuse, unfair treatment, and goal blocking) and response subscales (maladaptive behavior, behavioral skill deficit, arousal intensity, arousal duration, maladaptive cognition, and cognitive skills deficit). Respondents rate each item on a four-point Likert scale reflecting either level of anger experienced in the situations section or probability of response in the responses section. Initial research has produced norms for normal adults and college students and psychiatric and wife-batterer clinical samples (Hoshmand & Austin, 1985). Given the behavioral content of the items and the clear connection to the triple-response model of emotion definition, this inventory will most probably reflect change in individual domains of cognitive, behavioral, and physiological responses.

The Multidimensional Anger Inventory (Siegel, 1986) has 38 items that reflect the following anger variables: frequency, duration, and magnitude of anger expression; range of anger-arousing situations; mode of expression; and hostile outlook. Each item is rated in terms of how self-descriptive it is, from 1 — completely undescriptive — to 5 — completely descriptive. Psychometric data indicate good test-retest reliability and internal consistency as well as high correlations with the Novaco inventory (Siegel, 1986). Factor analyses indicate that there are three main factors, anger arousal, range of anger eliciting situations, and hostile outlook, that may relate to the behavioral components of response to anger, antecedents to anger, cognitive attributions, and response styles. Further investigation of this brief, easy to administer inventory should include testing of clinical populations as well as extending it to the adolescent domain.

Finally, the Children’s Inventory of Anger (CIA; Finch & Nelson, 1978) contains 71 items that were selected based upon interviews with normal and emotionally disturbed children about what made them angry. Stick figures with varying facial expressions correspond to the four-point Likert scale and reflect the intensity of anger felt. A factor analysis revealed six main factors: (a) at the mercy of authority figures, (b) at the mercy of uncontrollable events, (c) injustice, (d) embarrassment or threat to self-esteem, (e) frustration of desired goals, and (f) sibling conflict. The inventory has been shown to have good test-retest reliability, split-half reliability, and internal consistency. Further, concurrent validity studies indicate significant relationships of the CIA with peer-rated anger control problems, anger management skills, and the Walker Problem Behavior Checklist. The CIA has been sensitive to change in anger control interventions as well (Saylor, Benson, & Einhaus, 1985). This inventory seems appropriate for the simple and straightforward self-report of situational antecedents to anger reaction; however, the elementary content of items seems geared for a preadolescent or elementary population.
2. OTHER RELATED SELF-REPORT INVENTORIES

In addition to the adolescent's self-report of anger, clinicians and researchers may be interested in the assessment of corollary content areas. Anger control interventions that incorporate problem-solving and social skills training may result in changes in assertiveness, depression, and problem solving as well as the more general areas of parent-adolescent communication and self-esteem.

The Adolescent Assertion Expression Scale (Connor, Dana, & Twentyman, 1982) is a 60-item inventory on which the adolescent rates how like or unlike the described action is relative to him- or herself. There is a six-point Likert scale ranging from -3 (very much unlike me) to +3 (very much like me). Items that reflect typical adolescent interpersonal situations are grouped into three subscales: submissive, aggressive, or assertive. This inventory seems to be an excellent addition to the evaluation of cognitive-behavioral anger control training, as one would expect a reduction in self-reported aggression and an increase in self-reported assertion. Another possibility would be the Rathus Assertion Inventory, which has been validated and normed on a junior high school population (Vaal, 1975).

Because significant rates of depression are present among clinical subgroups of adolescents, particularly those in residential treatment, an assessment of this corollary area may become appropriate. The Reynolds Adolescent Depression Scale (Reynolds, 1986) is a 30-item measure designed to assess depressive symptomatology in adolescents aged 13 to 18. Utilizing a four-point Likert scale to indicate frequency of a symptom, adolescents respond to items concerning generalized demoralization, despondency, worry, and externalized components such as anger. Reliability and validity studies have shown this to be a robust measure; however, its relation to measures of anger and anger control problems needs clarification (Harris & Howard, 1987).

Another area related to adolescent anger is parent-adolescent conflict, which, although not a diagnostic category, is frequently mentioned in association with other disorders (Foster, 1987). Robin and Foster's (1984) model of treatment focuses on the failure of parents and teens to use good communication and problem-solving skills. Their assessment strategies include both adolescent and parent self-report as well as direct observation coding of analog interactions. The Issues Checklist (Prinz, Foster, Kent, & O'Leary, 1979) lists 44 common sources of conflict (i.e., telephone calls, choice of clothes to wear, coming home on time), that are rated for their occurrence as a topic of communication and for the intensity of anger generated (on a five-point Likert scale). Scoring reveals the quantity of issues, the latency of issues, and the weighted "frequency by intensity average" for both parents and adolescents completing the checklist. The Conflict Behavior Questionnaire has both a 73-item adolescent version and a 75-item parent version in which each item is rated according to true/false (adolescent version) or yes/no (parent version). The items reflect adolescent, parent, and dyadic behavior in areas of communication (i.e., "we joke around often," "we almost never agree") and conflict/anger (at least once a week we get angry at each other). Norms are available for both distressed and nondistressed families and extensive reliability and validity information is available (Foster, 1987). These well-developed instruments would seem critical in the evaluation of an assessment of generalization of behavior change to the home environment.

Other self-report inventories that may be appropriate in the evaluation of adolescents for anger control training include self-esteem inventories and broad-band behavior checklists (such as the Jesness Behavior Checklist, the Offer Adolescent Antisocial Behavior Checklist, and the Youth Perception Inventory). The reader is referred to Chapter 2 of Feindler and Ecton (1986) for more detailed descriptions.

3. ANALOG MEASURES

When more direct assessment of skills deficits is required, an analog assessment strategy in which specific behaviors are elicited in a contrived situation may be the most cost-efficient and socially valid method. For example, changes in problem-solving strategies might be assessed best via the Adolescent Problem Inventory (API) (Freedman, Rosenthal, Donahoe, Schlundt, & McFall, 1978). This 44-item behavioral role-playing inventory presents interpersonal problem situations to the adolescent and he or she is asked to respond as he or she typically would. Examiners therein rate the competence of the adolescent’s responses on a scale of zero to eight based on the test manual criteria. In addition to good reliabilities, the API has been shown to differentiate delinquent from nondelinquent adolescents. Recently, however, the API was shown not to be related to specific delinquent indicators such as number of arrests, charges, serious/violent offenses, times in isolation, or most serious offense of incarcerated delinquents (Hunter & Kelley, 1986), and the relationship between the API and anger control or aggressive behavior during treatment has yet to be researched. More specific to anger control problems, Saylor, Benson, and Einhaus (1985) used a similar Situations Responses Inventory in which four hypothetical conflict situations (e.g., being called names, being unjustly accused) were presented on audiotapes and children were asked, “What would you be thinking?” and “What would you do?”

Levels of social competence or changes in social skills and anger control ability are best assessed through role-played interpersonal situations. Responses to role-played conflicts or provocations may further reflect particular anger control skill deficiencies for the adolescent. In his early work, Novaco (1975) presented treatment subjects with imaginal and role-played provocations. Imagined provocations involved either being in a hurry to get somewhere and being prevented from doing so or putting through a tedious...
line and then having the groceries knocked over. The role-played provocations included a salesperson thwarting all attempts to return damaged merchandise and an obnoxious teacher's judgments about the adult subject's child. During these provocations, the subject's blood pressure as well as self-reported anger experienced were recorded.

Deffenbacher and his colleagues (Deffenbacher, Demm, & Brandon, 1986; Deffenbacher, Story, Brandon, Hogg, & Hazaleus, 1988) have also used social provocation through imagery as an assessment strategy. College students were asked to imagine a "social" exchange at a party in which an individual refuses to listen to the participant's point of view and insults him or her. Following this, subjects' pulse rates were taken and they were asked to complete the state scale of the STAXI (Spielberger, 1988). Although cardiovascular measurements showed no changes as a result of anger reduction treatment, the combination of the imaginal provocation and the self-report may prove to be a promising analog measure. With antisocial adolescents, however, imagery induction strategies may not be useful, and more direct provocation may be needed in analog assessment.

Earlier work in the area of social skills training for unassertive children (Bornstein, Bellack, & Hersen, 1977) and for explosive psychiatric adults (Frederiksen, Jenkins, Foy, & Eisler, 1976) and adolescents (Kolko, Dorsett, & Milan, 1981) provides examples of role-played assessments that have been incorporated into the assessment strategy used in the adolescent "Chill-Out" program (Feindler & Ecton, 1986; Feindler, Ecton, Kingsley, & Dubey, 1986). Similar to Bornstein, Bellack, and Hersen's assessment (1977), 10 standardized conflict scenarios were developed based on reports of typical adolescent incidents occurring in the residential center. Table 1 lists these situations, which are described by a narrator, in which a male confederate delivers a standard prompt. The adolescent's responses are then videotaped and later coded according to the behavioral coding system of Frederiksen, Jenkins, Foy, and Eisler (1976). The response categories include looking time, irrelevant comments, hostile comments, inappropriate requests, appropriate requests, overall social skill, duration of scene, and enumeration of any particular anger control skill exhibited during the role-play. Interrater percentage agreement scores ranged from 84.8% to 100% for the various categories in the Feindler, Ecton, Kingsley, and Dubey (1986) treatment evaluation. Further, this analog assessment provided a posttest validation check on whether or not adolescents would incorporate any of the anger control strategies when provoked. Table 1 presents the frequency of verbal and nonverbal anger control techniques used by treatment and control subjects in postassessment role-plays for the same study (Feindler, Ecton, Kingsley, & Dubey, 1986).

This analog strategy has been further extended as an assessment probe of generalization. Based on the early Kaufmann and Wagner (1972) "BARB" technique, the use of a direct provocation of the adolescent, either with or without warning, in the naturalistic setting has been incorporated into both Chill-Out assessment and treatment. Staff members at the residential treatment facility are trained in the BARB strategy and, for one month after treatment termination, the adolescent is approached approximately four to five times per week by designated BARB staff. The adolescent is then warned that he or she will be "barbed" and the staff member confronts the adolescent with one of the following:

- Where the hell are you going? No way do you have permission to be off the unit. Get back to your own room.
- Hey? Are you the one that took the 10 bucks out of the staff desk drawer on the unit? Rumor has it you've had some extra money lately and stealing is typical for you.
- You better change your attitude if you think you are ever going to get out of here. Stop acting like you control the place.
Following the adolescent’s response, the staff member completes a short checklist covering various aspects of the adolescent’s behavior, such as (a) evidence of any anger control strategy (with the strategy used noted); (b) inhibition of temper flare-up; (c) good eye contact, body posture, and gestures; and (d) appropriate assertiveness. Phase 2 of the BARB procedures is similar except that the adolescent is not warned that he or she is about to receive the BARB and the provocations are varied and more spontaneous. Data from this analog tool enable the clinician to determine both the maintenance and setting generalization of behavior change resulting from anger control training.

Recently, Tisdelle and St. Lawrence (1988) used contrived problem situations in which staff members “accused” conduct disordered adolescents of wrongdoing in a school setting. The accusations were that the subject had written “cuss” words on the wall, clogged a drain with toilet paper, or stolen an item of clothing. The adolescent’s responses were audiorecorded and rated for appropriate verbal problem-solving strategies. This measure seemed sensitive to treatment changes in verbal behavior and also encouraged involvement of other staff members in the adolescent’s treatment.

Finally, although seemingly more appropriate for use with younger children, Kettlewell and Kausch (1983) report the use of a circle game in which the center child’s responses to teasing from others standing around him are recorded. Because many anger control skills are covert in that they are designed to inhibit aggressive responding, this type of assessment strategy may be useful in quantifying a subject’s nonresponse to verbal provocation.

4. SELF-MONITORING METHODOLOGY

A crucial part of the early phase of the anger control training program involves the identification of specific anger antecedents, behavioral responses to provocation, and consequences to both resolved and unresolved conflicts. Self-monitoring methods seem most appropriate in the gathering of this highly individual and situation-specific information. The Hassle Log (Figure 1) presents the standard data sheet used in the studies completed by Feindler and colleagues. Data from this log enable the clinician to determine the adolescent’s individual response pattern, to assess frequency and intensity of anger reactions, and to monitor changes in behavior due to treatment interventions. Caution is necessary in that adolescents may not be particularly compliant or accurate in the observation and recording of their own behavior. Further, there are numerous stimulus and response discriminations that are required for reliable self-monitoring, and the cognitive biases (Dodge, 1985) and limited affective experiences (Garrison & Stolberg, 1983) of aggressive children and adolescents may make this a difficult task. The clinician should view the self-monitoring methodology primarily as an instructional tool in the analysis of anger provocations and reactions and only secondarily as a data source.
Anger logs have also been completed by college students participating in short-term anger reduction programs. In studies by Deffenbacher and colleagues (Deffenbacher, Demm, & Brandon, 1986; Deffenbacher, Story, Brandon, Hogg, & Hazaleus, 1988), subjects were asked to rate person-specific/situational anger for a one-week period. These logs were quantified according to the average daily anger rating, the average anger rating for all events recorded, and the number of anger incidents. Although this approach may be promising for the verbal and compliant adolescent, it is not clear how reliable these ratings were or how they correlated with other anger measures. Certainly, the self-monitoring format is flexible enough to be used to design as open-ended and detailed a data sheet as clinically appropriate.

5. DIRECT OBSERVATION METHODS

Direct observation of behavior in the natural environment remains the most robust and desirable behavioral assessment strategy. However, because anger is defined as a subjective physiological and cognitive experience, and because the relationship between anger and overt aggressive behavior is not a clear one, the use of direct observation methods for evaluation of anger control skills is difficult. There have been numerous anger control interventions in which behavior has been quantified by recording the frequency of aggressive behavior (Kettlewell & Kausch, 1983), by recording aggressive behavior in the gym and during unstructured free play (Saylor, Benson, & Einhaus, 1985), by teachers recording of disruptive and aggressive behavior in the classroom (Garrison & Stolberg, 1983), and by creating unit ratings for aggressive behaviors (Schlichter & Horan, 1981). However, for some of these investigations (Lochman & Lampron, 1988; Saylor, Benson, & Einhaus, 1985), there were no clinically significant changes in naturalistic aggressive behavior as a result of anger control training.

Several issues arise that make it difficult to determine the appropriateness of direct observation evaluation measures. First, none of the above authors provided sufficient detail on the behavioral response categories and on observational methodology to determine adequacy or generalizability. Second, the majority of studies employing direct observation strategies employ younger children, who are less reactive to assessment methods. The presumed aggression of antisocial adolescents may be very infrequent, covert, or under the contingent control of supervised environments. Improved anger control should result in reduced physiological arousal, appropriate perception and attributions regarding provocative incidents, and inhibition of intense and/or frequent aggressive behaviors. It may be that direct observation methods have been neither sensitive nor appropriate enough to define and quantify these types of covert behavioral outcomes.

However, Feindler (1979) incorporated a detailed direct observation system titled ABOS (Aggressive Behavior Observation System), which is intensities of aggressive behavior were noted in natural classroom and cottage environments and deemed important in determining generalization of behavioral change following anger control training. Results from this initial single-subject evaluation indicate a reduction in highly intense forms of aggression (physical violence), but little change in milder forms (teasing), and may have direct implications for client-to-treatment match decisions. Finally, expectations for changes in overt aggressive behavior following anger control training may need to be tempered. These results require further replication on other adolescents and under different circumstances.

All too often, program data from already existing behavior management systems are offered as evidence for change in adolescent behavior. It is tempting to equate the continuous data graphs from adolescents in a junior high setting (Feindler, Marriott, & Iwata, 1984) or in a residential psychiatric facility (Feindler, Ecton, Kingsley, and Dubey, 1986) with direct observation of aggressive behavior. However, caution is in order, as these data represent staff behavior and program contingencies rather than adolescent behavior. The validity of these data is dependent upon the staff’s ability to observe and discriminate various categories of aggressive behavior and then to congregate them as the program requires. However, these data do provide an indication of overall behavioral adjustment in the extra-therapeutic environment, and they can easily be collected throughout a formal treatment program. Further, because it seems virtually impossible to evaluate anger control training in isolation from concurrent treatment efforts, these types of data do need analyses.

III. COGNITIVE-BEHAVIORAL ANGER CONTROL SKILLS TRAINING

A. General Therapeutic Strategies

Cognitive-behavioral anger control training is generally presented as a didactic program in which skills training for the adolescent is emphasized. The three main components, arousal management, cognitive restructuring, and prosocial skills, correspond to hypothesized deficiencies implicated in the development and maintenance of anger outbursts and aggressive behavior patterns. For each component, specific skills are presented in an educational format, modeled, rehearsed through repeated role-played provocation scenes, and then applied to the natural environment. The program is designed to teach the adolescent to assess each anger-provoking incident and to implement the most effective response from his or her repertoire of anger control skills (Feindler & Ecton, 1986). However, prior to implementation, three major clinical issues must be emphasized.
First, a decision must be made concerning whether to use either individual or group treatment. Although there are no comparative data that indicate the superiority of one approach over the other with the aggressive adolescent population, both individual (Feindler, 1979, 1988) and group (Feindler, Ecton, Kingsley, & Dubey, 1986; Feindler, Marriott, & Iwata, 1984) interventions have resulted in improved anger control skills. Group interventions certainly have the advantage of multiple models and sources of feedback, increased probability of spontaneous and naturalistic provocations, and greater opportunity for direct prompting and reinforcement for appropriate response to interpersonal provocations from peers. However, individual intervention may be indicated due to motivational, verbal/cognitive, or attentional deficits. Adolescents who have interfering psychopathology such as self-abuse or suicide behaviors, who express concern over confidentiality of treatment, or who are extremely socially withdrawn would seem more appropriate for an individual approach. Finally, because it may be that various subtypes of aggressive adolescents may respond differently to various components of the anger control program (Long & Sherer, 1984), individualized treatments may be most effective and efficient.

A second issue is related to presentation of anger control either as a self-control program without ties to external reinforcement contingencies or as a component of existing behavioral programs such that improved anger control and/or reduced aggression result in direct reinforcement. Lane and Burchard suggested in 1983 that behavioral management programs for delinquents foster dependency on contingencies that are too artificial and emphasize the development of compliance behavior through external reinforcement. Since that time, self-control interventions—which currently enhance generalization of treatment gains and circumvent the adolescent developmental issues of resistance to external behavior change agents—have abounded. Further, because much adolescent aggression occurs out of the range of adult program managers and program contingencies, self-control of anger and impulsive aggression should provide the most relevant and durable change. Unfortunately, however, the natural reinforcers available for a controlled response to provocation may not be available or may not be contingent in the adolescent’s environment, and the self-controlled responses may not be established. Some researchers have reported instances in which staff members actually undermined adolescents’ use of anger control skills (Saylor, Benson, & Einhaus, 1985; Schlichter & Horan, 1981).

It may be necessary, especially during the initial stages of anger control intervention, to structure the reinforcement of discrete skills to shape successive approximations of successful anger control and ensure generalization to the natural environment. When Lochman and Lampron (1988) added a goal-setting intervention to their anger control treatment of 31 aggressive preadolescents, follow-up improvements were enhanced. Subjects set weekly behavioral goals for improved classroom performance, teachers monitored goal attainment, and subjects were rewarded for meeting criteria. The authors suggest that the cognitive-behavioral intervention for aggressive children was augmented by the inclusion of reinforcement contingencies for overt performance (Lochman & Lampron, 1988). Indeed, the data used to evaluate group interventions reported by Feindler and colleagues (Feindler, Ecton, Kingsley, & Dubey, 1986; Feindler, Marriott, & Iwata, 1984) reflect changes in behavior consequated in already existing token economy programs. Clearly, comparative research designed to evaluate the effectiveness of self-control versus external control programs is needed to clarify this intervention training issue.

A final therapeutic issue reflects the need to plan for and maintain behavior change. Throughout anger control training, the relevance of the training is emphasized. Role-play assessments as well as scenes used in training are developed from the adolescent’s own self-monitoring data and thus ensure the appropriateness of content. Structured homework assignments, in which skills are applied to the natural environment, are key generalization strategies (Goldstein, Glick, Zimmerman, Reiner, Coult, 1987), and compliance with these homework tasks should be addressed during the training (Primakoff, Epstein, & Covi, 1986). Further, the use of natural behavior change agents in anger control training is encouraged. Although not yet evaluated as a separate component strategy, the teaching of parents (Kifer, Lewis, Green, & Phillips, 1974; Robin & Foster, 1984), peers, and staff members (Feindler, Latini, Nape, Romano, & Doyle, 1980; Maher, 1985) will further enhance the desired behavioral outcomes of anger control training.

B. Arousal Management Skills Training

1. RATIONALE

In Schachter and Singer’s (1962) model, emotion was considered a function of a state of physiological arousal and of the cognitive interpretation/labeling of this arousal. Anger arousal, in particular, is marked by physiological reactivity in the cardiovascular and endocrine systems as well as by tension in the skeletal musculature and by aggressive perceptions and interpretations of situational events (Novaco, 1985). A further conceptualization with regard to the physiological component of anger has defined anger as an affective stress reaction occurring in conjunction with exposure to stressors and aversive stimulation (Novaco, 1979). Finally, Zillman (1971) has suggested that there is a transfer of physiological excitation residues from prior arousal that can combine with excitatory responses evoked by some present event. This transfer of accumulated arousal may intensify the experience and expression of anger in response to even minor provocations or aversive
stimuli. Taken together, these theoretical propositions reinforce the inclusion of arousal reduction techniques in comprehensive anger control training.

From a clinical perspective, there has been significant evidence relating both expressed and suppressed anger to cardiovascular disease. In fact, anger and hostility have been advanced as a significant aspect of emotional behavior mediating the cardiovascular disorders of essential hypertension and heart disease (Diamond, 1982). Further, due to excessive sympathetic nervous system arousal, chronic hostility may be the major pathogenic aspect of the Type A behavior pattern (Hart, 1984), and the most therapeutic target for change may be anger reduction. Clearly, the focus on adolescent interventions is timely in that blood pressure reactivity and anger arousal in young persons may be a significant risk factor for the development of hypertension. The potential exists to modify the consequences for those adolescents who respond to environmental or emotional stressby high cardiac output, increased peripheral resistance, or both in order to prevent the development of cardiovascular disease (Coates, 1983). Finally, evidence from life events research with adolescents suggests that significant social stress contributes to antisocial behavior patterns in delinquent adolescents (Tolan, 1988), although the exact mechanisms require further clarification. The development of appropriate stress and anger coping styles in aggressive youth, in particular, the regulation of excessive physiological arousal, seems both logical and necessary.

2. TYPES OF AROUSAL MANAGEMENT PROCEDURES

(a) Systematic desensitization. The set of techniques known as systematic desensitization was developed for the reduction of conditioned anxiety reactions and was designed to condition a response antagonistic to anxiety to occur in the presence of anxiety-evoking stimuli. The most commonly employed anxiety-inhibiting response used is deep muscle relaxation, however, assertion and humor have also been used. Usually, a hierarchy of anxiety-provoking stimuli is developed and these items are presented imaginarily or in vivo while the client is relaxed. The application of systematic desensitization to the population of angry adolescents rests on the assumption that anger and aggression may be modified by developing incompatible responses to provoking situations (Bornstein, Hamilton, & McFall, 1981). Others have hypothesized that anger may arise as a defensive reaction to a primary fear response and that the inhibition of the fear response should decrease the secondary anger response (Warren & McLellan, 1982). So, if employed to reduce fear-precipitating anger or to reduce physiological arousal and accompanying anger, which in turn reduce inhibitions surrounding assertiveness or appropriate expressions of anger, systematic desensitization seems appropriate.

However, the effects of systematic desensitization for anger reduction in adults have yet to be adequately demonstrated, and there are no published reports in which adolescent populations have been targeted. Warren and McLellan (1982) reviewed three case reports and five controlled studies, and all demonstrated some therapeutic effects. However, the assessment of change was limited to self-report; there was no measurement of actual overt anger or aggressive behavior; and, in studies where physiological indices were used, the results were mixed. Unfortunately, the mechanisms of the relationship between anger control and arousal reduction are not yet clear.

Hart (1984) modified an anxiety management program to train anger control skills in Type A individuals. College student subjects, screened on the Jenkins Activity Survey, received group training in muscle relaxation, were then exposed to anger-inducing imagery presented in hierarchic fashion, and subsequently practiced self-induced stress/anger and self-controlled relaxation. Results indicated a major reduction of self-reported Type A behaviors, and the author suggests that repeated exposure to manageable quantities of anger coupled with relaxation-based coping may have facilitated anger regulation via counterconditioning (Hart, 1984). Although this approach appears promising, assessment of change in anger arousal as well as physiological reactivity is needed to confirm the theoretical underpinnings of systematic desensitization.

3. RELAXATION TRAINING

There has been significantly more clinical research conducted in the use of relaxation procedures in the reduction of anger problems. Although Novaco's (1975) earliest demonstration of stress inoculation for anger control problems indicated that cognitive restructuring strategies were more effective than the relaxation techniques, there have been numerous applications of alternative relaxation procedures. Deffenbacher and his colleagues (Deffenbacher, Demm, & Brandon, 1986; Deffenbacher, Story, Brandon, Hogg, & Hazaleus, 1988; Hazaleus & Deffenbacher, 1986) criticized Novaco's passive counterconditioning format, insufficient relaxation practice, and lack of specific relaxation coping skills, all of which work against the development of self-control. Affect modification treatment, which was an adaptation of anxiety management training, included the presentation of individually determined anger-arousing cues and scenes following training in progressive deep muscle relaxation, relaxation without tension, relaxation imagery, and deep-breathing-cued relaxation (Hazaleus & Deffenbacher, 1986). Therapist control of relaxation retrieval was faded across six one-hour group treatment sessions as intensity of anger arousal was increased. Although college students reported reductions in both general trait and state anger following imaginal provocations, there were no significant differences between the affect modification and the cognitive restructuring groups. These findings along with reductions in reported tendencies to use physical or verbal aggression and an increase in the use of constructive action strategies— as measured
by Novaco's six-item coping questionnaire—were replicated in the Deffenbacher, Demm, and Brandon (1986) study as well. Finally, Deffenbacher, Story, Brandon, Hogg, and Hazaleus (1988) compared a cognitive plus relaxation treatment with a cognitive intervention and found that the addition of the self-controlled relaxation component did not significantly enhance the already effective cognitive component.

A review of these results on relaxation training indicates a clinically relevant effect for training in specific relaxation strategies and for desensitization to anger-arousing cues; however, the necessity of this component in anger control treatment has not been sufficiently documented. In addition, there has been no systematic research conducted with clinical populations of anger disordered clients or aggressive adolescents. A number of relaxation strategies are incorporated into the Feindler and Ecton (1986) program; however, analyses of this discrete component have not yet been conducted. From a clinical perspective, anecdotal case evidence supports the use of both relaxation training and systematic desensitization strategies with adolescents who are somewhat anxious and impulsive in their anger reactions. For these youths, their angry outbursts are accompanied by anxious thoughts, expectations of loss of control, and fear related to the provoker or the consequences of the outbursts. On an individual level, these adolescents will probably also develop hierarchies of anger cues that “make them feel uptight or uncomfortable.” Table 2 presents a hierarchy developed by a 17-year-old in individual outpatient anger control training (Feindler, 1988). His anxiety was thought to be related to possible failure in school and grade retention, to rejection (including verbal rejection as well as physical removal from the house) by both parents, and to the possible involvement of the police each time he blew up at his parents.

For this adolescent, relaxation training was highly effective in reducing his general arousal level and his distress level during family confrontations. However, it seemed that the imaginal desensitization to each of the items on the hierarchy was the most effective strategy in reducing his anger arousal and inhibiting his aggressive response to his mother. Clearly, this important clinical strategy should be evaluated beyond this case study and with adolescents who are screened for diagnostic categories of anger control problems as well as anxiety.

4. ADDITIONAL AROUSAL MANAGEMENT STRATEGIES

Both the Chill-Out program (Feindler & Ecton, 1986) and Goldstein's Aggression Replacement Training program (Goldstein, Glick, Zimmerman, Reiner, & Coultry, 1987) include additional short-term strategies for reducing the physiological arousal that accompanies anger arousal.

These include (a) deep breathing, in which adolescents are trained in diaphragmatic breathing to help in controlling responses in high-pressure situations. This relieves the physical accumulation of tension and serves to momentarily distract the adolescent from the provocation cue. In (b) backward counting, adolescents are instructed to count backward silently from twenty to one, at a slow and even pace, once they have recognized their anger arousal and have identified the triggering event or cue. Again, this strategy serves as a quick distractor and time delay, which increases the probability of a controlled, nonangry response to the provocation. For (c) pleasant imagery, the adolescent is encouraged to develop a set of peaceful scenes that will effectively calm him or her. If there is time to engage in imagery during a provocation sequence, it is advisable that the youths engage in imagery directly antagonistic to anger-inducing images.

C. Cognitive Restructuring Interventions

1. RATIONALE

Novaco’s (1975) earliest hypothesis indicated that anger is determined by the interplay among external events, the manner in which they are cognitively processed, and the behaviors exhibited in response to them. His emphasis on cognitive determinants suggested that individuals who are chronically angry may have certain maladaptive cognitive styles that predispose them to view events as more frequently and intensely provoking than nonangry individuals (Lopez & Thurman, 1986). Central to this view of anger is the cognitive
mediational process, which has a major role in determining what response will be made to the external event or provocation stimulus. For Schachter and Singer (1962), the cognitive labeling of physiological arousal is based on appraisal and interpretation of contextual stimuli and leads to the experience of a particular emotion. For Berkowitz (1983), the process begins with the detection of the arousal occurrence and the cognitions that come into operation, evaluating the event and defining it as either aversive or not. Further, the instigation to aggression is linked to the negative affect generated by this initial negative appraisal.

Children and adolescents who exhibit poor anger control and aggressive behavior patterns evidence some key central processing deficits that become the focus for cognitive restructuring interventions. Dodge and Frame (1982) hypothesized that aggressive children consistently process social stimuli differently than nonaggressive children. Studies of attributional biases of aggressive children indicate that (a) when a hypothetical peer has committed a provocation with hostile intent, children are more likely to generate aggressive retaliatory responses; (b) ambiguous provocations are overperceived as having hostile intentions; and (c) there is a selective recall for hostile cues (Dodge, 1985).

Although these results have not yet been replicated with an adolescent sample, clinical observations indicate that angry adolescents not only perceive these hostile intentions and expect an interpersonal conflict but also heighten their negative affect through ruminations about blame and justification. Indeed, anger may at times be a justified response to provocation and may serve to motivate action that will alleviate the problem situation (Biaggio, 1987); however, adolescents may overjustify their anger and implicate others in their own explosiveness. In addition, there is evidence for greater frequency and pervasiveness of irrational beliefs in angry subjects. Although Zwemer and Deffenbacher (1984) indicated that personal perfection, anxious overconcern, blame-proneness, and catastrophizing were common themes related to anger in college students, Foster (1987) suggested that various extreme, overgeneralized beliefs related to catastrophizing and attributions of malicious intent contributed to excessive conflicts between some parents and adolescents.

Further, cognitive processing deficits that influence anger arousal and that mediate responses to provocation have been documented in adolescents exhibiting aggressive and delinquent behaviors. Delinquents are generally found to lag behind nondelinquents in moral and cognitive development. They tend to use less sophisticated problem-solving behaviors and are less likely to resist temptation (Hains & Miller, 1980), which may indicate deficits in inhibitory self-talk. Further, delinquents as a group display more immature modes of role-taking, logical cognition, and moral reasoning (Lee & Prentice, 1988). In particular, delinquents are viewed as more egocentric in thought, and more likely to succumb to environmental pressures and influences (Niles, 1986). Finally, it has been documented that discrete problem-solving skills (such as problem identification, generation of alternative solutions, and specification of a viable course of action after evaluating consequences of all possible solutions) are deficient in delinquents (Gaffney & McFall, 1981) and are related to a wide variety of adjustment indices including self-concept, academic adjustment, psychiatric and behavioral difficulties, delinquency, and interpersonal functioning (Kennedy, Felner, Cance, & Primavera, 1988).

In sum, the cognitive processes of accurate event appraisals, interpretations, and attributions; expectations; problem solving; and impulse control are primary in the appropriate control of anger and aggressive responding. Aggressive or hostile attributions, ruminations, and expectations all influence the arousal of anger and act as determinants of aggression. Therefore, direct cognitive-behavioral intervention is critical in any anger control program.

2. COGNITIVE SKILLS TRAINING

As research has indicated the existence of verbal mediation deficits in aggressive children and adolescents, self-instructional training is needed to teach the appropriate use of internally generated verbal commands or control statements and to ensure the effectiveness of these guiding statements. In anger control, self-instructions or coping statements are designed to facilitate an adaptive appraisal of aversive events, appropriate expectations of response to provocation, and control of both physiological and motoric response as well as to encourage appropriate problem-solving strategies (Spivack, Platt, & Shure, 1976). Similar to the “Think Aloud” program of Camp, Blum, Herbert, and Van Doornick (1977), in the “Chill-Out” program, adolescents are coached in the generation of relevant and effective self-statements. These are modeled by the therapist during role-played provocations and rehearsed first overtly and then overtly by the adolescent. Typical instructions are presented in Table 3 according to the phase of the provocation sequence. Repeated practice in naturalistic settings, particularly in response to peer provocations, is necessary to ensure the auditory memory and sequences needed to implement internal controlling verbalizations.

Thinking Ahead procedures are self-statements designed to focus the adolescent’s attention on estimation of future negative consequences for current misbehavior. Adolescents are asked to enumerate response-consequence relationships that exist in their environment and to incorporate this restatement of existing contingencies in their inhibitory self-guiding verbalizations. Often adolescents are motivated to do this in the hopes of avoiding future punishment.

Attribution retraining techniques focus on the initial perceptions and interpretations adolescents make about provoking events. The tendency to
TABLE 3
Typical Self-Statements Used in Adolescent Anger Control

<table>
<thead>
<tr>
<th>Quiet During Reminders</th>
<th>Loud During Reminders</th>
</tr>
</thead>
<tbody>
<tr>
<td>&quot;I'm going to chill-out and let him get in trouble.&quot;</td>
<td>&quot;Hey, chill-out man. We don't need to get into a fight.&quot;</td>
</tr>
<tr>
<td>&quot;I can just ignore this and not let it get to me.&quot;</td>
<td>&quot;Let's hear each other out and then decide how to solve</td>
</tr>
<tr>
<td>&quot;I'm in control of my anger and I can solve the problem.&quot;</td>
<td>this.&quot;</td>
</tr>
<tr>
<td>&quot;I'm feeling angry and so are you, so let's take a time-out.&quot;</td>
<td>&quot;1'm feeling angry and so are you, so let's take a time-</td>
</tr>
<tr>
<td></td>
<td>out.&quot;</td>
</tr>
<tr>
<td>Quiet Thinking-Ahead Reminders</td>
<td>Loud After-Reminders</td>
</tr>
<tr>
<td>&quot;If I just keep myself calm, I won't get in trouble.&quot;</td>
<td>&quot;We did a great job avoiding a hassle with them.&quot;</td>
</tr>
<tr>
<td>&quot;I have to accept this punishment as deserved so she won't</td>
<td>&quot;When we use our words instead of our hands, things</td>
</tr>
<tr>
<td>give me another.&quot;</td>
<td>seem to work out better.&quot;</td>
</tr>
<tr>
<td>&quot;If I ignore this guy now, I won't let him get me so pissed</td>
<td>&quot;You seemed to be really angry, but you handled yourself</td>
</tr>
<tr>
<td>off I'll do something stupid.&quot;</td>
<td>pretty well.&quot;</td>
</tr>
<tr>
<td>Quiet After-Reminders</td>
<td>Loud After-Reminders</td>
</tr>
<tr>
<td>&quot;I gotta remember that I used to really 'lose it,' but now</td>
<td>&quot;When we use our words instead of our hands, things</td>
</tr>
<tr>
<td>I'm much better controlled.&quot;</td>
<td>seem to work out better.&quot;</td>
</tr>
<tr>
<td>&quot;I handled myself really well and didn't lose my cool.&quot;</td>
<td>&quot;You seemed to be really angry, but you handled yourself</td>
</tr>
<tr>
<td>&quot;Next time I'll think ahead and do an even better job at</td>
<td>pretty well.&quot;</td>
</tr>
<tr>
<td>controlling my temper.&quot;</td>
<td></td>
</tr>
</tbody>
</table>

Note: Quiet reminders are said by the adolescent to himself (covert). Loud reminders are said by the adolescent to others involved in the provocation (overt).

in a self-justification statement that validates anger expression. If adolescents are encouraged to make alternative interpretations and are able to "remind" themselves that there are other nonpersonal reasons for seeming provoking events, anger arousal may be reduced. During this intervention, an attempt is also made to examine underlying irrational belief systems that may influence attributions of provoking events. Much like rational-emotive therapy, the adolescent is trained to refute irrational beliefs and to replace them with reasonable conclusions about events. So the typical adolescent conclusion, "Mom always treats my brother better than me and it's not fair," is broken down into irrational conclusions concerning unequal treatment, fairness of treatment, and the use of the absolute term always. An alternative self-statement, "Sometimes my mom seems to treat my brother differently," may help reduce the accompanying anger and may inhibit an aggressive response.

Finally, based on identified skill deficiencies, cognitive problem-solving skills training is often incorporated into anger control training. Causal thinking, consequential thinking, means-ends thinking, alternative thinking, and perspective taking (Spivack, Platt, & Shure, 1976) can be incorporated into the cognitive component. Many of the self-instructions used in anger control training focus the adolescent on each of these steps to provide a more thoughtful response to provocation. Further, conducting anger control training in a group format enables the direct prompting of alternative thinking perspective taking as the adolescents practice their newly acquired skills together.

3. APPLICATIONS AND CRITIQUE

Although there are numerous applications of self-instructional training with younger children and in classroom environments, Snyder and White (1979) were the first to systematically incorporate self-instructional training in the treatment of behavior problems of delinquent adolescents. Fifteen adolescents in a residential treatment were instructed in the use of self-statements designed to inhibit impulsive and aggressive behaviors and to prompt more appropriate interpersonal responding. The treatment group demonstrated improved school attendance and social/self-care responsibilities and a decrease in impulsive behaviors as compared with a control group of delinquents.

Schlichter and Horan (1981) provided stress inoculation training to 38 institutionalized delinquents. Part of this package of anger coping skills includes training in the use of self-instructions, and, compared with subjects receiving relaxation training alone, adolescents trained in anger management showed improvements in role-played provocations. Unfortunately, the anger control training had no effect on verbal or physical aggression in the natural environment.

The Chill-Out program described by Feindler and colleagues (see Feindler & Ecton, 1986) includes significant training in the use of self-instructions, self-evaluative statements, and problem solving and has been shown to be effective with several adolescent populations. Further, Goldstein, Glick, Zimmerman, Reiner, and Coulty (1987) have incorporated the cognitive skills training from the Chill-Out program into their Aggression Replacement Training model. Identification of anger-elicitng cues, self-statement description training, realistic appraisals and attributions, and refocusing anticipation of consequences are taught as alternative inhibiting and calming responses to provocation.
Unfortunately, to date, there have been few component analyses conducted on these anger control "packages." It is, therefore, not possible to comment on the effectiveness of the self-instructional component alone. Relative to theories and definitions of anger and aggressive response patterns, cognitive mediational processes seem central. It would seem then that cognitive interventions may be critical in reducing anger disorders.

Research with college students has indicated that cognitive skills training results in reductions of anger-related cognitions but doesn't increase social skills (Moon & Eisler, 1983). In an attempt to identify the effective ingredients in anger control, Deffenbacher and his colleagues (Deffenbacher, Story, Brandon, Hogg, & Hazaleus, 1988) have compared relaxation training with cognitive skills therapy, and both treatment groups showed significant reductions in self-reported anger and improved coping tendencies. In these studies, cognitive coping skills included the identification of angering self-statements, the construction of coping alternatives, and the application of coping skills during imaginal anger provocations. Relaxation training did not enhance the cognitive component, so it may be that cognitive restructuring represents the critical aspect.

Cognitive techniques may result in changes in verbal behavior as assessed by self-report inventories or problem-solving indices, but the correspondence between these changes and overt responding in the natural environment has not been clear. Tisdelle and St. Lawrence (1988) conducted problem-solving skills training with eight conduct-disordered inpatient adolescents. Although changes in verbal problem-solving abilities generalized and were maintained at a one-month follow-up, behavior during in vivo problem situations was unimproved. Perhaps we do not know enough about the sequences and interrelatedness of cognitive concepts that influence overt response for the angry adolescent. From the perception of the behavioral event, to self-statements involving attributions and judgments of personal efficacy, to self-evaluations after response to interpersonal conflict, the mediating role of cognition is not entirely clear (Stefanek, Ollendick, Baldock, Francis, & Yaeger, 1987). Indeed, research reviewed by Dodge (1985) suggests that typical social-cognitive skills training procedures should be altered slightly to take into account the nature of the aggressive child's processing biases. In particular, he suggests that verbal instructions should serve to increase the salience of alternative attributions and should help in delaying responses, redirecting goals, gathering more information, heightening focus on the other, and decreasing selective attention to hostile cues. Further research on cognitive skills training not only should be designed to evaluate this component in isolation from other interventions but should focus heavily on appropriate content and the influence of particular self-statements and problem-solving skills as well. Although Copeland (1982) has identified age, cognitive functioning, and motivational variables that influence the outcome have indicated that training in general problem-solving self-instructions rather than specific task-focused instructions promote generalization of self-control, little is known about self-guiding verbalizations with adolescents—in particular, with aggressive adolescents. Given that antisocial youth are deficient in cognitive problem-solving skills, and given the central role accorded cognitive process in the development and maintenance of aggressive behavior (Kazdin, 1987), research designed to maximize the effectiveness of cognitive interventions should continue.

D. Self-Management and Social Skills Training

1. RATIONALE

According to Novaco (1975), anger as a stress reaction has a behavioral component, namely, the overt response to the perceived provocation. Although not always the case, aggressive behaviors directed toward the aversive provocation stimulus may result. The skills deficit model of aggression indicates that aggressive behavior patterns are a result of poor self-management and social skills acquisition. Due to inadequate socialization or impulsive control models and/or early learning experiences, antisocial adolescents have difficulties expressing their anger appropriately and may display abusive outbursts in an attempt to resolve conflicts through avoidance or by verbal and physical attacks (Frederiksen, Jenkins, Foy, & Eisler, 1976). Further, it has been suggested that adolescent offenders often behave maladaptively simply because they lack the requisite skills of social competence that are needed to progress through this development period (Dishion, Loeb, Stouthamer-Loeber, & Patterson, 1984; LeCroy, 1986).

Adequacy of social response repertoires is of particular relevance to adolescent anger control training because anger is a highly interpersonal emotion that cannot be fully understood apart from the social context in which it occurs (Averill, 1983). For most people, over half of the usual anger episodes involve a loved one or someone well known (Averill, 1983). Further, research on intrafamily conflict indicates an average of two interpersonal conflicts every three days, with 73% of the arguments focused on interpersonal issues and 44% of arguments occurring between adolescents and their siblings. Clearly, interpersonal functioning, assertiveness, ability to communicate, and self-control of emotion all play roles in this frequent source and consequence of anger.

Similarly, self-management abilities have been linked to social competence and overall behavioral adjustment of adolescents (deArmas, Contrera, & Brigham, 1986). The skills involved in governing one's own behavior to attain certain goals require the cognitive capacity to generate and evaluate response alternatives and the behavioral capacity to inhibit inappropriate responses and exhibit desired responses (Little & Kendall, 1979). Although
the direct relationship between self-management deficits and anger control
deficits has not been documented through clinical research, clinical observa-
tions indicate that angry adolescents do not self-observe, self-reinforce, or
contract with themselves in an effective fashion. This, coupled with the
documented peer maintenance and generalization of external contingency
management interventions with adolescents (see Feindler & Ecton, 1986) and
the developmental transitions required of adolescents, fully supports the
inclusion of self-management and social skills training as a component of
successful anger control.

2. SOCIAL SKILLS TRAINING

Through the use of instructions, modeling, behavior rehearsal, and perfor-
man ce feedback, adolescents can be taught a range of social and interpersonal
skills. Although the social behaviors targeted for intervention have not been
empirically derived, earlier literature has suggested a number of nonverbal
and verbal responses that should initially be assessed and, if found deficient,
targeted for improvement. The primary set of social skills that relate to anger
control includes the nonverbal skills of appropriate response latency, eye
contact, facial expression, and gestures as well as the verbal skills of appro-
riate voice loudness and verbal response content (Frederiksen, Jenkins, Foy,
and Eisler, 1976; Kolko, Dorsett, & Milan, 1981). Each discrete skill is
defined and then modeled for the adolescent in both individual and group
training. Then adolescents engage in numerous role-play scenarios in which
they rehearse each skill and receive feedback on their performance. These
role-plays should increase the intensity of provocation and should approxi-
mate naturalistic adolescent interactions.

The Chill-Out program (Feindler & Ecton, 1986), as well as other compre-
prehensive aggression reduction programs (see Goldstein, Glick, Zimmerman,
Reiner, & Coulty, 1987; LeCroy, 1986), includes a set of advanced social
skills that require more sophisticated social discrimination and assertiveness.
These skills include asserting individual rights, expressing emotion appropri-
ately, making requests of others, saying no effectively, resisting peer pres-
sure, maintaining friendships, and coping with manipulation by others via
assertive techniques (e.g., broken record, fogging, escalating assertion).
Using similar training techniques, adolescents are taught when to implement
these assertive and communicative skills and how to test their effectiveness.
Finally, the use of "I language" assertion (Lange & Jakubowski, 1976) is
discussed and practiced.

3. SELF-MANAGEMENT SKILLS TRAINING

It has been documented that coercive or aggressive behavior of youth
places them at risk for peer rejection, parental rejection, and the develop-
ment of lowered self-esteem (Patterson, 1986), so the role of the adolescent's
angry behavior in escalation must be examined. The Angry Behavior
Cycle, a concept introduced in the Chill-Out program, focuses on the self-
mofification of the adolescent's overt aggressive responses that provoke
others. As the cyclical components of interpersonal interaction sequences are
analyzed with the individual adolescent, he or she is asked to evaluate his or
her overt behaviors in terms of social appropriateness and to indicate which
of the responses may provoke others. Most angry adolescents talk too loudly,
use obscene language and threatening gestures, and engage in mild physical
instigation (i.e., pushing) when expressing themselves. These types of
responses are then targeted for change in a self-management framework.

The adolescent is taught some general rules of reinforcement and contin-
gency contracting, and a homework task is structured to represent an individ-
ual self-modification plan. As the adolescent selects a social behavior to
change, determines the contingencies operating on improved performance,
and implements self-reinforcement procedures, self-management skills are
also being trained and reinforced. These self-evaluation and decision-making
skills are further enhanced at the end of the Chill-Out program when the
adolescents engage in a variety of spontaneous role-plays and each must
choose and implement an appropriate anger control skill from his or her
newly acquired repertoire.

4. APPLICATIONS AND CRITIQUE

Although clinical evaluation indicates that adolescents who complete
comprehensive anger control evidence reduced aggressive responses and
improved social skills (for review see Feindler & Ecton, 1986), the relation-
ship of the prosocial skills training component to naturalistic social behavior
remains hypothetical. Results from other social skills interventions should be
examined in order to support the validity and efficacy of this component.

Although there are numerous social skills programs that have been con-
ducted in a variety of settings and with a variety of adolescents (Filipcck, Ar-
cher, & Friedman, 1980; LeCroy, 1986; Ollendick & Hersen, 1979), a
limited number have targeted the aggressive and antisocial behavior of
adolescents. Early research by Freedman, Rosenthal, Donahoe, Schlundt,
and McFall (1978) and Gaffney and McFall (1981) empirically determined social
skills deficits for delinquent boys and girls, respectively. This work, along
with successful interventions for socially unskilled and unassertive children
(Bornstein, Bellack, & Hersen, 1977) and adults (Frederiksen, Jenkins, Foy,
and Eisler, 1976; Rahaim, LeFebvre, & Jenkins, 1980), helped to establish
goals for social skills training programs for aggressive youth.

In a multiple baseline design across three behavior classes (interruptions,
responses to negative communications, and requests for behavior change),
Elder, Edelstein, and Narick (1979) evaluated a social skills training program
for four aggressive psychiatric adolescents. The reported data provide sup-
port for the treatment techniques of role-playing, modeling, coaching, and
feedback in the reduction of ward fines and reduction for aggressive behavior.
The measurement of generalization of improved social skills across environments indicated transfer of training. A similar social skills training program was developed for 76 young, male, incarcerated offenders (Spence & Marzillici, 1981). Through the use of modeling, role-playing, feedback, social reinforcement, and task assignments, adolescents were taught a range of social and interpersonal skills. Although short-term gains involving basic skills were noted, follow-up and generalization data did not indicate transfer and maintenance of social skills.

Kolko, Dorsett, and Milan (1981) conducted a social skills training program for three hospitalized adolescents with various aggressive behavior patterns. Specific behaviors designated as anger control skills were trained via modeling, behavior rehearsal, and videotape feedback techniques. The multiple baseline evaluation across subjects and target skills indicated increases for all subjects in the percentage of anger control skills used. However, there were no data available on actual aggressive behavior and, therefore, no data on increased anger control in the natural environment.

Of significance to the treatment of aggressive delinquent adolescents is a finding that particular types of juvenile offenders responded differently to treatment approaches. Long and Sherer (1984) evaluated a structured social skills training program (Goldstein, Sprafkin, Gershaw, & Klein, 1980) for 30 adolescent male offenders in a probation-counseling program. Following modeling, role-playing, and written assignment procedures, high-frequency offenders were rated as more socially skillful but low-frequency offenders benefited more from a discussion control group. Further evidence from locus of control assessments indicated that social skills training provides support for the belief that one’s behavior and consequences are controlled by oneself rather than by external factors. This finding suggests that self-control techniques, incorporated into skills training programs, may facilitate the creation of more socially acceptable behavior patterns.

In terms of self-management training programs, few investigations with aggressive youth have been reported. Brigham, Hopper, Hill, deArmas, and Newsom (1985) conducted an in-school educational intervention for 79 young adolescents who were having school-related discipline and/or adjustment problems. Students selected for high rates of disruptive behavior and after-school detentions were also reported to have inappropriate social skills. In a small group classroom, students were taught to analyze personal problem situations, to collect data, and to select appropriate self-management procedures for dealing with these situations. Evaluations from the multiple baseline study across groups indicated decreases in disruptive behavior, improved behavioral ratings by teachers, and greater satisfaction in peer relationships. Although the adolescents involved in this program were less disordered than the angry adolescents emphasized in this chapter, the inclusion of general principles of behavior control and a focus on a specific change project are easily incorporated into anger control training and are likely to enhance generalization of behavior change (deArmas, Contrera, & Brigham, 1986).

It remains to be seen which of the component skills—or combinations thereof—facilitate anger control and reduction of aggressive behavior in the natural environment. Although Goldstein, Glick, Zimmerman, Reiner, and Coultry (1987) indicated that anger and related affective states must be controlled before prosocial behaviors can be implemented, the causal relationships between self-management and social skills competencies, anger, and aggressive behaviors have yet to be clearly defined in an adolescent population. Given the lack of evidence that interpersonal skills development is associated with a corresponding decline in the occurrence of aggression in the natural environment (Bornstein, Hamilton, and McFall, 1981), future research is needed to establish the empirical validity of the content of skills training programs and to investigate the relationship of prosocial skills to arousal management and cognitive restructuring components of adolescent anger control training. Although Kazdin (1987) has criticized problem-solving skills training for producing marginally clinically significant changes in antisocial youth, others (Lane & Burchard, 1983) highlight the need to develop programs that shape decision making, self-control, and problem-solving competencies in delinquent populations. In fact, assessment of social validation of program effectiveness was included in one social skills training program, and ratings from three diverse samples of external judges indicated improved anger control and ability to deal with provocative interactions (Kolko, Dorsett, & Milan, 1981).

IV. CRITICAL EVALUATION OF ADOLESCENT ANGER CONTROL TRAINING

A. Review of Effectiveness

As reflected in Table 4, there has been a sustained 10-year interest in anger control-related interventions for aggressive and conduct disordered preadolescents and adolescents. The treatment techniques have ranged from the anger control program modeled on Novaco’s (1975) stress inoculation approach, to verbal problem-solving and self-instructional training, to social skills training. It is interesting that, except for Feindler’s (1988) case study, and the inclusion of arousal management skills in the Chill-Out program (Feindler, Ecton, Kingsley, & Dubey, 1986; Feindler, Marriott, & Iwata, 1984), there has been less emphasis on the reduction of physiological arousal. The primary emphases have been on anger control coping via cognitive restructuring and problem-solving training and on prosocial skills acquisition.
TABLE 4
A Summary of Adolescent Anger Control Interventions

<table>
<thead>
<tr>
<th>Study</th>
<th>Subjects</th>
<th>Major Treatment Intervention</th>
<th>Design</th>
<th>Results</th>
<th>Generalization Follow-Up</th>
</tr>
</thead>
<tbody>
<tr>
<td>McCullough, Huntsinger, &amp; Nay (1977)</td>
<td>n = 1 16-year-old male school student</td>
<td>Role-played appropriate responses to provocation; thought stopping and relaxation training</td>
<td>case study</td>
<td>reduced temper loss incidents; however, no baseline</td>
<td>NA</td>
</tr>
<tr>
<td>Feindler (1979)</td>
<td>n = 8 court-adjudicated delinquents; 6 males, 2 females; age = 14.8 yrs.</td>
<td>anger control: self-instructions, self-monitoring, relaxation stress inoculation, assertiveness, prosocial and verbal problem-solving skills</td>
<td>multiple baseline across subjects: n = 4 treatment n = 4 control</td>
<td>decreases in aggressive behaviors in cottage and classroom environments; increased cognitive problem-solving ability</td>
<td>seven-month follow-up on four available subjects: continued improved problem solving; slight increases in aggressive behavior.</td>
</tr>
<tr>
<td>Snyder &amp; White (1979)</td>
<td>n = 15 male residential delinquents</td>
<td>self-instruction training to inhibit impulsive and aggressive behaviors</td>
<td>Groups: - treatment - control</td>
<td>reductions in disruptive behaviors; increase in school attendance and self-care behaviors</td>
<td>six-week follow-up effect maintained in three measures</td>
</tr>
<tr>
<td>Elder, Edelstein, &amp; Narick (1979)</td>
<td>n = 4 psychiatric inpatients</td>
<td>social skills training: modeling and behavior rehearsal to change specific social behaviors (interruptions, responses to negative communication, and requests for behavior change)</td>
<td>multiple baseline across response classes</td>
<td>improved social skills across environments</td>
<td>three-month follow-up: &quot;3 subjects had been discharged and had still been in the community at 9 months&quot;</td>
</tr>
<tr>
<td>Schlichter &amp; Horan (1981)</td>
<td>n = 38 institutionalized male delinquents</td>
<td>stress inoculation training: self-instructions, relaxation, assertive responding, and self-reinforcement</td>
<td>Groups: - stress inoculation alone - no treatment</td>
<td>reductions in anger on three self-report scales; null effects found on institutional behavior ratings</td>
<td>(continued)</td>
</tr>
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TABLE 4 (Continued)

<table>
<thead>
<tr>
<th>Study</th>
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<th>Major Treatment Intervention</th>
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<th>Generalization Follow-Up</th>
</tr>
</thead>
<tbody>
<tr>
<td>Spence &amp; Marzialle (1981)</td>
<td>n = 76 male incarcerated offenders</td>
<td>social skills training</td>
<td>Groups: - social skills training (SST) - attention placebo (APC) - no-treatment control (NTC)</td>
<td>Improvement for social skills training</td>
<td>no transfer and maintenance of social skills</td>
</tr>
<tr>
<td>Kolko, Dorsett, &amp; Milan (1981)</td>
<td>n = 3 male aggressive inpatients</td>
<td>social skills training with emphasis on discrete skills related to anger</td>
<td>multiple baseline across subjects</td>
<td>increases in specific social skills</td>
<td>none reported</td>
</tr>
<tr>
<td>Kettlewell &amp; Kausch (1983)</td>
<td>n = 41 children in summer day camp, aged 7 to 12.2 years (31 males, 10 females)</td>
<td>coping skills: modeling and behavior rehearsal of self-instructions appropriate to interpersonal provocation events; alternate coping methods were stressed</td>
<td>Groups: - cognitive behavioral treatment - control group</td>
<td>improved interpersonal problem-solving decrease in discipline for fighting but no change in verbal aggression or peer ratings of aggression; treatment subjects self-reported anger reductions</td>
<td>none reported</td>
</tr>
<tr>
<td>Lochman, Burch, Currey, &amp; Lampron (1984)</td>
<td>n = 76 males aged 9-12 years</td>
<td>anger coping skills training focuses on increasing problem-solving skills in interpersonal situations; goal setting designed to improve classroom behavior with contingent reinforcement</td>
<td>Groups: - anger coping - goal setting - anger coping plus goal setting - untreated control</td>
<td>reduced disruptive and aggressive off-task behavior for anger coping; increases in self-esteem</td>
<td>postintervention assessment four to six weeks following treatment termination</td>
</tr>
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(continued)
TABLE 4  (Continued)

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<tr>
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</tr>
</thead>
<tbody>
<tr>
<td>Long &amp; Scherer (1984)</td>
<td>n = 30 male offenders in a probation program; x age = 14.92 years</td>
<td>structured social skills: modeling and behavior rehearsal of specific social behaviors—active listening, self-control, avoiding fights, and handling pressure</td>
<td>Groups:</td>
<td>improved social skills for high frequency offenders; increased internal locus of control</td>
<td>none reported</td>
</tr>
<tr>
<td>Feindler, Marriott, &amp; Iwata (1985)</td>
<td>n = 36 junior high students multisuspended; x age = 13.8 years</td>
<td>Chill-out program: arousal reduction, self-instructions, assertiveness, and problem-solving skills</td>
<td>Groups:</td>
<td>decreases in fines for aggressive behavior in classroom, token economy, improved problem solving, and decreasing impulsivity</td>
<td>five week</td>
</tr>
<tr>
<td>Saylor, Benson, &amp; Einhaus (1985)</td>
<td>n = 14 male in-patient psychiatric adolescents; x age = 11.9 years</td>
<td>anger management program: teaching about nature and determinants of anger, relaxation and imagery, self-instructions and behavioral rehearsal of coping skills</td>
<td>Groups:</td>
<td>no difference between groups on unit ratings; behavioral observation change in desired direction on self-report inventory</td>
<td>ten-week follow-up; no change on self-report, no maintenance</td>
</tr>
<tr>
<td>Feindler, Eaton, Kingsley, &amp; Dubey (1986)</td>
<td>n = 24 hospitalized conduct disordered male adolescents; x age = 15.5 years</td>
<td>Chill-out program: self-monitoring of hassles, relaxation, deep breathing, and imagery training; self-instructions, problem-solving, and prosocial skills development; behavior rehearsal of coping approach</td>
<td>Groups:</td>
<td>decreases in restrictions for aggressive behavior in ward, token economy, improvements in role-played provocations</td>
<td>one month: reductions in aggressive behavior maintained; significant increases in fines for aggression for control group</td>
</tr>
</tbody>
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(continued)

TABLE 4  (Continued)

<table>
<thead>
<tr>
<th>Study</th>
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</tr>
</thead>
<tbody>
<tr>
<td>Goldstein, Glick, Zimmerman, Reiner, &amp; Coultry (1987)</td>
<td>n = 60 incarcerated male delinquents; x age = 15 years</td>
<td>ART—aggression replacement training (prosocial skills training, anger control, and moral education)</td>
<td>Groups:</td>
<td>ART resulted in improved social skills, reduction in frequency of acting-out incidents, reduction in teacher-rated impulsiveness</td>
<td>at three months follow-up postadjustment interviews on 17 treatment and 37 control subjects indicated improved community adjustment</td>
</tr>
<tr>
<td>Lochman &amp; Lampron (1988)</td>
<td>n = 31 aggressive boys; x age = 11.7 years</td>
<td>anger coping skills and goal setting intervention (see Lochman et al., 1984)</td>
<td>For group: See Lochman, Burch, Currey, &amp; Lampron (1984)</td>
<td>none reported</td>
<td>seven-month follow-up reduced off-task behavior in class; increased on-task; no different effects for aggressive or disruptive behavior</td>
</tr>
<tr>
<td>Feindler (1988)</td>
<td>n = 1 outpatient aggressive high school males; x age = 17.5 years</td>
<td>relaxation training, desensitization to anger-arousing stimuli, impulse delay, and cognitive restructuring</td>
<td>case study</td>
<td>decreases in self-reported anger arousal levels and in mother-reported family conflicts</td>
<td>Results maintained at a two-month follow-up</td>
</tr>
<tr>
<td>Tisdelle &amp; St. Lawrence (1988)</td>
<td>n = 8 conduct disordered inpatients</td>
<td>verbal problem solving: through modeling and behavior rehearsal, discrete problem-solving and social skills were taught</td>
<td>multiple baseline across subjects</td>
<td>generalization to untrained problem situations; no effects on in vivo &quot;BARBS&quot;</td>
<td>one month: only 3 subjects available, no improvement in staff ratings</td>
</tr>
</tbody>
</table>
The research investigations, both multiple baseline and group designs, have focused clearly on the population of interest and in relevant settings. Further, there has been an extensive variety of measures used to evaluate effectiveness. These have included self-report inventories of anger, peer/teacher/staff ratings of aggression and overall behavioral adjustment, analog provocation and socialization role-plays, direct observation of aggressive and disruptive behavior, and data from existing contingency management programs. Although this variety is to be commended for supporting a multimethod approach, it may also reflect an inability to secure reliable and valid measurement of adolescent anger and aggression. Further, because little assessment research has been conducted on the intercorrelations of these various approaches, the meaningfulness of data is hard to interpret. The outcome data from these anger control investigations are also limited by the lack of adequate follow-up assessments and/or the limited maintenance of therapeutic change.

In general, the effective anger control interventions have resulted in

1. reductions in self-reported anger (Saylor, Benson, & Einhaus, 1985; Schlichter & Horan, 1981);
2. increased problem-solving abilities (Feindler, Marriott, & Iwata, Kettlewell & Kausch, 1983; Tidelle & St. Lawrence, 1988);
3. decreased fines for aggressive and disruptive behaviors in existing contingency programs (Feindler, Ecton, Kingsley, & Dubey, 1986; Feindler, Marriott, & Iwata, 1984; Lochman & Lampron, 1988; Snyder & White, 1979); and

Taken together, these results support the hypothesized changes in cognitive and behavioral response components in Novaco’s (1975) anger model. However, there seems to be little support for anger control effects on physiological arousal, inhibition of aggressive impulses, overt aggressive responding, and changed perceptions by others in the adolescent’s natural environment. This is certainly disappointing.

B. Critical Issues in Anger Control Intervention

Several key issues must be raised in an attempt to understand reasons for these equivocal results. The comprehensive, reliable, and valid behavioral assessment of the component skills of anger control and of anger outbreaks is required to evaluate treatment efficacy. Not only are the relationships between the various anger components unclear, so is the relationship between verbal/cognitive behaviors and overt aggressive responding. In addition to scope and sensitivity of the various measurement methods and contents must be delineated. As Saylor, Benson, and Einhaus (1985) have suggested, appropriate anger control may involve an increase in inhibitory responses and a decrease in physiological arousal and hostile attributions—changes that may not be reflected in self-reports, problem-solving role-plays, or ratings by significant others. The hypothesized treatment goals of adolescent anger control training must be further defined and must be reflected in both content and method of assessment.

Related to this conceptual and measurement issue is the diagnostic issue of maximizing the client-to-treatment match. As Lochman (1984) indicates, there may be subtypes of aggressive adolescents who differ greatly not only in their overt behavior patterns but in their physiological reactivity and their cognitive skill deficiencies. It is critical that comparative investigations of adolescents in various diagnostic categories as well as various aggressive behavior patterns (e.g., property versus person offenses, status versus non-status offenses, undercontrolled socialized aggressors versus overcontrolled socialized aggressors; Snyder & Patterson, 1987) be completed to determine profiles of anger control and expression. Additionally, component analyses on each skills section of the anger control training packages must be conducted on homogeneous samples of various adolescent subtypes to identify the maximally effective combination of intervention procedures.

Finally, as Kazdin (1987) has indicated, antisocial youth may be too complicated and multiproblem to respond to simple, short-term, cognitive-behavioral programs with generalized and well-maintained improvements. A longer-term, high-intensity, or multicomponent treatment approach may be in order. For example, it has been well documented that inept family socialization practices are influential in the early stages of the development of aggressive and antisocial behavior patterns (Snyder & Patterson, 1987). Parents of delinquents exhibit a general lack of control, a lack of consistency and contingency, the extensive use of physical punishment, a lack of nurturance, and significant rejection (Eron & Huesmann, 1984; Patterson, 1986; Snyder & Patterson, 1987). The adolescent’s aggressive behavior patterns, which include frequent provocations and explosive outbursts, become part of a coercive family process and not only are reinforced but are functional. Even for adolescents in residential treatment, the obvious influence of these variables cannot be overlooked. Certainly, a parent-training component that focuses on contingency management, conflict negotiation (Kifer, Lewis, Green, & Phillips, 1974), and improved communication skills (Foster, 1987) will help to improve interaction and discipline styles in families of aggressive youth. Although research has not yet demonstrated the determinants of poor anger control, it seems likely that parents of aggressive adolescents display the same aggressive/impulsive response to provocation, deficient problem-solving abilities (Snyder & Patterson, 1987), hostile and defensive attri-
arousal as the adolescents. Family, or perhaps parent, anger control training seems necessary to ensure that improvements in the adolescent's behavior not only will generalize to the natural environment but will be consistently reinforced.

V. FUTURE DIRECTIONS FOR RESEARCH AND INTERVENTION

In addition to the above suggestions for future clinical research, there are other aspects of anger control research that require investigation. Further extensions of the training technology to other adolescent populations, variations in the dissemination of treatment and methods used to enhance generalization, and maintenance of behavior change are all areas of future investigations.

A. Content of Anger Control Self-Instructions

Some previous research has examined the differential effectiveness of task-specific versus general problem-solving self-instructions on cognitive task performance in children (Kendall, 1981; Schlessier, Meyers, & Cohen, 1981; Thackwray, Meyers, Schlesser, & Cohen, 1985). Children receiving training in the use of generalized or conceptual self-statements showed better self-control of impulsive responding. Schlessier, Meyers, and Cohen (1981) have suggested that conceptual strategies enhance cognitive involvement and attention to the task at hand and are more easily adapted to the new tasks. Intuitively, the results from these impersonal task demonstrations should generalize to the effects of general self-statements on interpersonal tasks, namely, provocation incidents. This has yet to be demonstrated in a clinical population.

Another variation on the content of self-instructions during interpersonal situations focuses on the use of either inhibiting or facilitating self-statements. Research has indicated that popular children endorse more facilitating than inhibiting self-statements when compared with aggressive or withdrawn children (Stefanek, Olleldick, Baldock, Francis, & Yaeger, 1987) and that impulsive children who show deficiencies in ability to delay gratification also endorse fewer inhibiting self-statements (Camp, 1977). This microanalysis of the inhibitory and facilitory nature of self-instructions needs an extension to a clinical population and to interpersonal tasks, especially those of direct provocations. It remains to be seen which type of self-instruction maximizes anger control in aggressive adolescents.

B. Moral Reasoning Training

Recently, there has been a renewed focus on the moral and socioemotional development of antisocial adolescents. Delinquent adolescents are found to be lacking in age-appropriate levels of moral reasoning. They have been found to be more egocentric, less likely to resist temptation, and more likely to misunderstand the perspective of others (Hains & Miller, 1980; Niles, 1986). In response to these documented deficiencies in moral reasoning and problem solving, Goldstein, Glick, Zimmerman, Reiner, and Coultry (1987) have incorporated a moral education component into their Aggression Replacement Training program. Through the presentation and discussion of moral dilemmas and through group problem solving, this training is presumed to enhance prosocial response to interpersonal problems. The authors of a recent review on the relationship of empathy and aggression (Miller & Eisenberg, 1988) have suggested that lower levels of empathic capacity are associated with dysfunctional sociomoral development. In particular, it is hypothesized that individuals who do not vicariously experience negative reactions of others as a result of their own aggressive behavior may not inhibit subsequent aggression. Because empathy includes emotional matching and the ability to take the cognitive and affective perspective of the other, delinquents are likely to be low in empathy. Indeed, investigations of the association of empathy with antisocial behavior have generally proven positive with adult offenders. However, data from comparative assessments with juvenile delinquents and nondelinquents have been inconsistent (Lee & Prentice, 1988). Clearly, more research is needed on the regulatory role of empathic skills in adolescents' response to others, in provocation, and in
corresponding levels of aggression to determine if “empathy training” should be incorporated into anger control programs.

C. Extensions to Other Populations and Settings

The majority of research on adolescent anger control has targeted conduct disordered adolescents in residential treatment facilities. The few investigations with high school students unfortunately have not been followed up with further research. Adolescents with milder patterns of aggressive behavior, or with corollary difficulties such as depression, anxiety, or substance abuse, would be likely to benefit from discrete cognitive-behavioral skills training. On the other hand, the treatment technology should also be extended to more severely aggressive populations such as incarcerated offenders, adolescent sex offenders, individuals from families that experienced domestic violence, and brain-damaged individuals who exhibit extreme and inconsistent aggressive outbursts.

Certainly, changes in program format and structure may be required for these extensions to other populations. Group treatment may need to be replaced by highly individualized treatment protocols or family interventions. Role-played provocations and homework/self-monitoring tasks used both in assessment and in training should more closely approximate naturalistic incidents for these clinical subgroups of adolescents. Other effective techniques such as contingency management programs, family problem solving (Blechman, Taylor, & Schrader, 1981), parent-adolescent communication skills training (Robin & Foster, 1984), and parent training (Nomellini & Katz, 1983) should be included where appropriate. However, each of the various training components would need a separate evaluation.

It may be that, in some settings, anger control interventions are in order for significant others in the adolescent’s environment. Effective interventions with police officers (Novaco, 1977; Rahaim, Lefebvre, & Jenkins, 1980), probation counselors (Novaco, 1980), child-care workers (Feindler, Latini, Nape, Romano, & Doyle, 1980), and high school principals (Maher, 1985) have been documented in the reduction of self-reported anger arousal and in the acquisition of anger control skills. However, the effects of paraprofessional and professional training on interactions with aggressive adolescents and on the overt behaviors of the adolescents themselves have not been documented. Finally, because peers of aggressive youth develop their own biased expectations of aggressive behaviors (Dodge, 1985) and serve as sources for both provocation and consequences of aggressive outbursts, peer mediator interventions may be in order. Although often done in clinical interventions, research on the use of peers as models and confederates during role-plays and as peer trainers is still needed.

REFERENCES


VI. CONCLUSIONS

There is much to be excited about in the field of adolescent anger control. The treatment packages that have been developed for this most difficult and "resistant to change" population have proven effective in reducing anger and aggressive behaviors, in increasing problem-solving and impulse control skills, and in enhancing prosocial behavior. However, methodological inadequacies in clinical research demonstrations, inadequate assessment strategies, and poor generalization and maintenance of treatment outcomes have reduced the impact of these results. I hope that researchers and clinicians alike will continue to pose and answer questions that will make adolescent anger control more efficient and more effective as a treatment modality.