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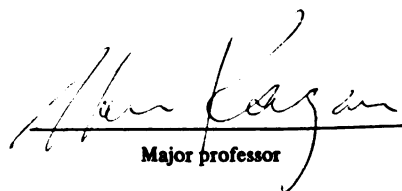
AN EVALUATION OF TWO TREATMENT PROGRAMS FOR
FAMILIES WITH ACTING-OUT ADOLESCENTS

presented by

Linda Maria Garcia-Shelton

has been accepted towards fulfillment
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AN EVALUATION OF TWO TREATMENT PROGRAMS FOR
FAMILIES WITH ACTING-OUT ADOLESCENTS

By

Linda Maria Garcia-Shelton

A DISSERTATION

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ABSTRACT

AN EVALUATION OF TWO TREATMENT PROGRAMS FOR FAMILIES WITH ACTING-OUT ADOLESCENTS

By

Linda Maria Garcia-Shelton

Effects of a short-term family treatment program for families with an acting-out adolescent were compared to the effects of an adolescent group treatment program and a no-treatment control group. Thirty families, randomly assigned to three experimental groups using referral source as a blocking variable, were pretested on four measures, treated, and then posttested on the same measures. The measures used to evaluate change as a result of treatment were:

(1) the Wynne and Singer Family Interaction Task, (2) the Family Behavior Change Scale, (3) the Tennessee Self-Concept Scale, and (4) the Drug and Delinquent Behavior Questionnaire. Posttest data were analyzed using a Multivariate Analysis of Covariance applied to two orthogonal contrasts, using pretest data as covariates.

All analyses failed to demonstrate any difference between the control group score and the average score of the two treatment groups. They also failed to demonstrate any difference between the two treatment groups. Furthermore, the nonsignificant differences found between groups were uniformly small, indicating that the problem was not lack of power.

Linda Maria Garcia-Shelton

In conclusion, both treatment programs evaluated in this study failed to change family interaction patterns, family attitudes, or adolescent acting-out behavior and self-concept.

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CHAPTER 1

INTRODUCTION

The purpose of this study is to determine the relative effectiveness of two counseling programs. Each program was offered by a community service agency. The agency is staffed by paraprofessionals and the programs serve families with acting-out adolescents. Both counseling programs are intended (1) to reduce strain in the participating families by improving communication and problem-solving skills, and (2) to improve the self-concept of the acting-out adolescent. One program offers services to the whole family; the other serves only the acting-out adolescent.

Chapter 1 includes background material related to both the traditional treatment of adolescent families and also the aims of this study. This background material includes:

1. Questions to be applied to both treatments.
2. Definition of terms.
3. Limitations of the study.
4. Basic hypothesis.
5. Problems of adolescent families.
6. Traditional treatment approaches.
7. New treatment approaches.
8. Theory: clinical perspective.

9. Normal versus dysfunctional families.

10. Theory applied to treatment.

Chapter I ends by outlining the remaining chapters of the paper.

Specific Questions

This study hopes to answer several questions about the merits of each program. First, does inclusion of additional family members in a counseling program improve outcome? Second, will parents and adolescents consent to family counseling as readily as they consent to counseling for the adolescent alone? Third, will families remain in counseling (not drop out) at the same rate at which individual adolescents remain in counseling?

These questions are critical to the program's effectiveness because a program which no one accepts or completes is useless.

Definitions of Terms

The following words are defined as used in this study:

Family is used to mean those people, residing together, who have a long-term commitment to each other. Generally, the term family refers to parents and their children; however, the population studied in this research project evidenced many variations of the traditional nuclear family. These variations included the single-parent family, the multigenerational family, and the foster family.

An adolescent is a child between the ages of 11 and 19. An adolescent family is a family including at least one adolescent.

An acting-out adolescent is a child whose behavior is in conflict with rules set by either the family or society (through the institutions

of schools or courts). Acting-out behaviors fall into three categories: intrafamily transgressions, status offenses, and nonstatus offenses. Intrafamily transgressions are violations of parental rules such as those relating to curfew, nonpermissible activities, and nonpermissible locations. Status offenses are those behaviors that are legally acceptable for adults but not for minors. Examples of status offenses are running away from home, school truancy, and sexual promiscuity. Nonstatus offenses are those behaviors that are always illegal, such as theft, breaking and entering, or assault and battery.

Family interaction refers to the many ways family members behave toward one another. However, when assessing family interaction in this study, only verbal interaction will be examined.

A triadic family consists of two parents and a child. This triad may be the entire family or may be a subset of the entire family.

An extended family is a multiple family unit consisting of a number of nuclear families related through the sibship of the adult members and often including a grandparental generation. The extended family therefore includes the roles of grandparent, aunt, uncle, cousin, niece and nephew, in addition to the roles of parent, spouse and child which are present in the nuclear family.

Delimitations

The treatment programs evaluated in this study were both carried out by a paid staff of paraprofessional counselors supported by funds from four sources: (1) a \$52,000 grant from the Attorney General of Michigan Trust Fund, (2) the Ingham County Probate Court, (3) the City

of East Lansing, and (4) the Ingham County Board of Commissioners. Counselor training, education and supervision data are discussed in Chapter 4.

Due to this very adequate funding situation, results from this study cannot be necessarily applied to low-budget free clinics staffed by volunteers. A paid staff has a degree of commitment to the job that a volunteer staff may not possess, and an agency with stable financial support has a measure of community trust and recognition that is perhaps not present in a volunteer agency. In Michigan, many medium-to-large communities have well-funded crisis centers. Results from this study may be applied to similar populations treated at those centers.

The programs evaluated in this study were highly thought of by local professional community organizations and enjoyed their active support. Results from this study cannot be generalized to programs which are merely tolerated or marginally accepted by the larger professional community.

The subjects of this study were all volunteers from one city in central Michigan. Hence results may not be generalizable to the population as a whole, but only to those families who identify themselves as needing and wanting help with their problems.

Basic Hypotheses

It is hypothesized that families receiving counseling as a family unit will increase the quality of their communication, improve the self-concept of the acting-out adolescent and decrease the amount of

adolescent acting-out more than families in which only the adolescent receives counseling. It is further expected that families in both family and adolescent-only counseling programs will improve more on these variables than families receiving no counseling at all.

Need for Adolescent Counseling

The need for the programs evaluated in this study is based primarily on (1) the difficulties facing adolescent families today and on (2) the failure of other existing programs to deal with those problems.

Difficulties in Adolescent Families

There are three problem areas to which many families are forced to respond: (1) increasing adolescent drug use (Light, 1975), (2) delinquency (both amount and gravity of offense) (National Commission on Marijuana and Drug Abuse, 1972), and (3) a general increase in the number of families broken apart through divorce (Epstein, 1974). The social thinkers whose ideas are discussed on the following pages have stated that these problems are responses to stress, both in the family and in the larger society. Constant change in our society has resulted in many families being caught between conflicting demands, unstable supports and ever-increasing expectations.

Winter (1961) agrees that modern life has created a great strain in intimate family relationships. As the nuclear family moves away from the extended family, the number of possible intimate relationships within the family diminishes. Winter states that we continue to expect the family to meet all of our basic needs, even as family resources to meet those needs diminish. This situation produces

conditions favorable to conflict. Stoller (1970) also commented on this phenomenon, and on the resulting family burdens:

The increasing isolation and independence of the conjugal family has resulted in an impoverished experience, thus placing an almost impossible burden on the family members by forcing them to carry out without aid tasks not easily accomplished in an insular fashion (p. 146).

Buckland (1972) states that families are very much in touch with the stresses of their modern-day life, but are not aware of the resources they have to deal with those stresses. She said:

Families are more attuned to stress, than they are familiar with resources; . . . they feel at the mercy of bureaucratic institutions without knowing how to utilize them to increase their options. Many affluent middle-class families function at a psychological survival level, while other families still struggle at a physical survival level in a society which has not yet established priorities in terms of human well-being. Families tend to feel bewildered by change, resistant and reactive, not having been taught any skills for the management of change (p. 151).

This undercurrent of stress will manifest itself differently in different families.

Common Treatment Approaches

Most approaches to helping the adolescent family deal with stress focus on the family member most obviously evidencing that stress--very often the acting-out adolescent. The adolescent is seen individually for counseling, or in some cases, in a group with his/her agemates.

Increasingly, though, the family unit has been viewed as the appropriate unit of care (Lewis et al., 1976). By focusing on the family, the change agent attempts to influence the way in which the

family deals with the issues of intimacy, values, and role definition, which may be closer to the causes of family stress than is the behavior of the acting-out adolescent.

Few concerted efforts have yet been directed at influencing external causes of family stress.

Limitations of Traditional Social Institutions

Schools, courts, the mental health system, organized religion, and Parent Effectiveness Training (PET) have attempted to deal with the problems of families with acting-out adolescents. All are very limited in their attempt to address the entire problem. Some are limited by mandate, others by skill or time limitations of their workers, and still others by families themselves, who may not consider a particular institution to be a legitimate source of help.

Schools. Schools, the adolescent family's most important social institution, focus almost exclusively on individual students rather than on their families. At best, attention to and help for problems is limited to child-centered rather than family-system-centered issues. Secondary schools are prepared to educate interested and able students. Pupils not exhibiting those qualities present problems. Schools typically choose to solve these problems with options that are in the schools', not the pupils', best interest. For instance, chronic truancy, a common behavior of the acting-out adolescent, often results in temporary or permanent suspension from school. This is a solution for the school, perhaps, but not for the family.

Courts. The probate or juvenile court is another institution that frequently comes in contact with families or acting-out adolescents. The court also finds itself unequal to the demands before it. According to a Lansing Probate Court official, court staff workers are notoriously overloaded, and often have little or no advanced professional training.¹ Because of this, and the complexity of problems in the families of their clients, the courts most often choose to work with the adolescent individually, or in groups. Family treatment is still viewed as too complicated and time-consuming for courts to attempt.

Traditional mental health system. Public and private mental health agencies and practitioners are involved in the treatment of acting-out adolescents. They occasionally work with the family as well as the individual adolescent. Their efforts are largely limited to clients who are able and willing to come in for treatment. This is a major limitation when the target population includes large numbers of disorganized families, and families with multiple problems. In addition, treatment at a mental health agency or through a private practitioner may carry with it a stigma of failure or of mental weakness, which many families won't accept. The cost of private treatment can also be prohibitive. Costs range from \$35-\$60 an hour, and many families do not have insurance to cover psychotherapy.

Organized religion. The church or synagogue has traditionally been a source of support and guidance to families facing difficult

¹ Summarized from conversations during 1975-76 with David Brown, Director of Training, Ingham County Probate Court.

problems. Their support, however, is most useful for those families who seek help before major family problems emerge. The family with a chronically truant, runaway adolescent needs an intensive remedial program. The growth-enhancing, educationally oriented programs offered through organized churches and synagogues are not enough.

Another limitation of church-related programs is that many families are not affiliated with an organized religion, and would not participate in programs offered through those institutions. Also, some families prefer not to reveal the extent of their family difficulties to their local minister, priest, or rabbi.

Parent Effectiveness Training. Within the last decade, Gordon (1975) has developed an educational program for addressing many common communication and problem-solving difficulties. Their model includes work with parents only and requires intellectual skill and interest. An additional limitation is the high cost of the course (\$50 for a series of eight classes for one parent, \$75 if both parents take the class).² In spite of these limitations, this program has been effective in helping highly motivated parents increase their communication and problem-solving skills (Effectiveness Training Associates, 1975).

New Developments in Alternative Community Agencies

It is clear from recent research that a portion of the families with acting-out adolescents is not being served by traditional social

²From conversations with Eleanor Morrison, a local P.E.T. instructor.

agencies (Garfield & Bergin, 1978). As family needs become increasingly complex, perhaps new institutions need to be developed to address those needs.

Crisis centers. One response during the last decade has been a dramatic increase in the number of crisis centers. Some of these centers meet the needs of troubled adolescents who are not being served by established social agencies (Garfield & Bergin, 1978). Other centers are outreach programs of existing social agencies. Rabinowitz (1973) described the need for such programs:

There is a growing community demand for the mental health establishment to respond to the adolescents' needs by setting up community-based outreach programs which, although clinically oriented, do not follow the usual clinical model for the delivery of service (p. 90).

Most of the crisis-centered agencies were originally staffed primarily by volunteers and began by offering crisis service for acute problems. As they became more experienced in the areas of drug abuse, drug overdose, attempted suicide, domestic violence and adolescent runaways, many of these agencies expanded their programs to provide short- and/or long-term counseling for these and other problems. There are four reasons for the expansion of services through this relatively new social institution.

1. Communities have increasingly shared responsibility for the increase in family problems. The paraprofessional crisis center is likely to be a small, loosely structured group of local residents who are concerned with helping the immediate community. These residents share the problems, and try to find solutions.

2. People have become more actively involved in their own care.

Clients often demand an equal share in the planning and execution of their treatment. New crisis-centered agencies often allow the involved people, both clients and workers, to develop a treatment program unique to each new situation, unhampered by custom and bureaucracy.

3. These agencies cost less to run than many other institutions that address the same needs. Most counseling in these agencies is done by trained and supervised paraprofessionals, both paid and volunteer, and the savings in wages alone are great. Additionally, these agencies most often function in houses or store-front offices with low overhead costs and minimal supplies.

4. Paraprofessional crisis centers have a special attraction for adolescents. The agency itself is often viewed by the surrounding community as having a kind of fringe legitimacy, just as adolescents have a kind of fringe legitimacy in the adult world. The workers are often young adults searching for a way to make their adult experiences relevant to the hopes and ideals of their own adolescence. These two factors combine in helping a troubled adolescent identify with the worker and the institution in a way that allows each to help the other. The acknowledged mutuality of the relationship is unique to this institution and is one of its greatest strengths.

Funding. Federal and state governments have added funds to those the communities provide through programs such as the Comprehensive Employment and Training Act (CETA) and grants for specific projects. The additional funds have allowed many crisis centers to expand their services.

Effectiveness. Research on the effectiveness of counseling programs offered by trained and supervised paraprofessionals in crisis centers is severely limited. The evaluation skills necessary for such an endeavor are not generally available to these low-budget agencies and the methodological discipline required is somewhat in conflict with their independent and individualistic style. Therefore, a well-designed evaluation of treatment programs offered by one such agency would clearly be useful. This study evaluates two programs of such an agency.

Theory

The treatment programs evaluated in this study are evaluated from a societal and interactional theoretical viewpoint. Families are viewed as having basic tasks, assigned to them by society, which they perform using strengths inherent to the family system. When the family system itself does not work well enough, outside intervention can help alter the dysfunctional system, thereby returning it to health.

The next section contains discussions of societally assigned family tasks, family strengths, methods of family change and the interaction differences between normal and dysfunctional adolescent families.

Family Tasks

The family is the basic unit of our society and according to Geismar and LaSorte (1964) it is responsible for "reproduction, shelter and physical care for family members, emotional care and the socialization of the young" (p. 38). Ackerman (1966) elaborated on these tasks. He stated that the family is responsible for "union and

individuation, the care of the young, the cultivation of a bond of affection and identity, reciprocal need satisfaction, and training for the tasks of social participation" (p. 62).

Family responsibilities lie simultaneously in the current physical and emotional support a family offers its members and the promise it gives the future through the raising of children. Rapid social change threatens the family's ability to function at the same time it requires the family's continued existence. Minuchin (1974) addressed this paradox:

The occidental world is in a state of transition, and the family, which must always accommodate to society, is changing with it. But because of transitional difficulties, the family's major psychosocial task--to support its members--has become more important than ever. Only the family, society's smallest unit, can change and yet maintain enough continuity to rear children who will not be "strangers in a strange land," who will be rooted firmly enough to grow and to adapt (p. 47).

In summary, society needs the family to provide an environment that is both stable and flexible, in order to meet the physical and emotional needs of its members and to raise children. The family has the potential to change quickly enough to meet the shifting demands of our society and slowly enough to allow its members to feel secure in their growth. This concept was enacted by Tevye in Fiddler on the Roof (Jewison, 1971). He struggled with just how much his "traditions" must bend in order to remain relevant to his family in their changing world. He also recognized that there is a point at which the "traditions" will no longer bend, but will break; that to pass that point meant to float anchorless with no signposts directing the way to safety.

Family Strengths

The dynamic, changing nature of the family is a strength to be used in a family treatment program. It is easier to influence a moving system than a static one.

The family has many internal resources. These resources stem from the individual members, who bring different skills, demands, and insights to the group as a whole. This behavioral and emotional diversity, combined with the caring within the group, contributes to the solution of systemic problems. The mutual caring that exists in all families can lead to a commitment to overcome the problems that beset the system. This commitment allows and encourages the family to examine sometimes painful or unacceptable feelings and behaviors in order to change or understand them.

Family Change

Ackerman (1966) outlined three ways that families can change:

(1) Re-education of the family through guidance, (2) Re-organization through a change in the patterns of family communication, and (3) Resolution of pathogenic conflict and induction of change and growth by means of a dynamic approach in depth to the affective currents of family life (p. 92).

These avenues of change are not mutually exclusive.

The third avenue for change describes the process of in-depth family psychotherapy. This approach is thorough but time consuming; it requires the skill of a well-trained psychotherapist. The first avenue for change, that of guidance, offers new ideas and expanded limits that may increase a family's problem solving. However, guidance has a connotation of receiver passivity, and may not in

itself produce change. The second avenue for change, reorganization through a change in the patterns of family communication, requires the active participation of family members and, by definition, involves an alteration in family behavior.

The guidance and communication methods for inducing family change, avenues 1 and 2, work well in group settings. They can be facilitated by trained leaders. Gordon's Parent Effectiveness Training program (1975) uses these two methods to work with a large group of parents simultaneously. Similarly, the empathy training model outlined in A Survival Manual for the Drug Center Volunteer (Hinds et al., 1972) blends guidance and communication methods, and is advocated in a group setting. These education/communication programs, when applied to the family by paraprofessional leaders, have the potential to influence many families.

Differences Between Normal and Dysfunctional Adolescent Families

Ferreira and Winter (1965) studied interaction in triadic families with the index child diagnosed as either (1) schizophrenic, (2) delinquent, (3) maladjusted, or (4) normal. Using the Unrevealed Difference Technique, which the researchers developed themselves, they assessed family interaction on 13 different variables. Ferreira and Winter discovered that normal families had higher Spontaneous Agreement scores, lower Decision Time scores, and higher Choice Fulfillment scores than delinquent families. (Spontaneous Agreement reflected the number of times one family member's questionnaire choice matched that of another family member. Decision time reflected the number of

minutes it took the family to discuss their consensus answers to the questionnaire. Choice Fulfillment reflected the number of times an individual family member's most wanted choice was what the entire family chose.) It was also shown that in normal families Spontaneous Agreement scores were positively correlated to the age of the child, whereas in delinquent families they were not. This suggested that, over time, normal families increasingly shared a frame of reference and delinquent families did not. Also, normal families had fewer chaotic responses than delinquent families. Overall, the data indicated that normal families functioned better in decision making than did delinquent families.

Mead and Campbell (1972) studied triadic family interaction using a design similar to Ferreira and Winter's. Their families included either a normal adolescent child or a drug-abusing adolescent child. Mead and Campbell also used the Unrevealed Difference Technique to assess family interaction. The researchers discovered that Spontaneous Agreement differentiated normal families from abnormal families, with normal families showing greater Spontaneous Agreement in triads. They also found a positive correlation between Choice Fulfillment and Spontaneous Agreement scores.

Both the Ferreira and Winter study and the Mead and Campbell study offered support for the hypothesis that normal families are more effective decision makers than abnormal families. The decision-making effectiveness of normal families compared to drug-abusing or delinquent families seems to stem most strongly from their shared preferences for certain outcomes. Neither of these studies explored the

mechanisms by which families reach decisions in areas of prior disagreement.

Hetherington, Stouwie, and Ridberg (1971) also studied triadic family interaction. Their index child was either normal (NL) or diagnosed as (1) unsocialized-psychopathic delinquent (PD), (2) neurotic-disturbed delinquent (ND), or (3) socialized-subcultural delinquent (SD). They used the Structured Family Interaction Task and the Stanford Parent Questionnaire to evaluate family interaction and attitudes. Post hoc examination of their data supported the hypothesis that each of the four diagnostic groups was different from the others. For boys, 87 of the 119 tests of the effects of group membership resulted in significant differences (73%). For girls, 49 of the 118 tests of the effects of group membership resulted in significant differences (42%). In addition, the differences among the three delinquency groups were as large as the differences between any one group and the normal controls. The four groups differed in the way they expressed conflict and affect and on the dominance patterns in the family. Nondelinquent families demonstrated fewer negative expectations and less anxious emotional involvement than did delinquent families. They also had a restrictiveness-permissiveness level very close to the mean of all families in the study, whereas the various categories of delinquent families were on either end of the restrictiveness-permissiveness distribution. Hetherington et al. found that the differences among families with female delinquents were not as strong as those for male delinquents, but were generally in the same direction. They also discovered that little correlation

existed between the behavior measure (a structured interaction task) and the attitude questionnaire.

Alexander (1973a, 1973b) reported results of two family interaction studies. The first study compared normal and delinquent family interaction, while the second study examined normal families only, relating their interaction patterns to teacher estimates of the index child's aggressiveness. In the first study, Alexander rated each individual communication as either defensive or supportive. His data supported the thesis that normal families have different and more effective communication patterns than delinquent families. Normal families demonstrated a lower rate of defensive communication across all directional diads, and children in delinquent families had lower rates of supportive communication toward their parents than did children in normal families. Alexander also demonstrated the reciprocity of supportive and defensive communication in families; the more a family member gave supportive or defensive communications to another person in the family, the more he/she received the same kind of communication from that person. In normal families, this reciprocity was significantly demonstrated for supportive communication, but not for defensive communications. In delinquent families such reciprocity was significantly demonstrated for defensive communications, but not for supportive communications. Clearly, normal families behave differently from delinquent families, and the differences function to amplify further the family's "wellness" or "deviancy."

The second study reported by Alexander examined only normal family interaction. The relationships between family communication

patterns and aggressiveness on the part of the child were explored. Alexander again demonstrated that normal families had higher rates of supportive communications than defensive communication, and that supportiveness was reciprocal in those families whereas defensiveness was not. He found that families with less aggressive sons demonstrated more parent supportive behavior and less mother to child defensive behavior. Even in normal families, levels of parental supportiveness and maternal defensiveness were related to the amount of child aggressiveness.

Summary

Looking at all family interaction studies reviewed, several comparisons can be made. Ferreira and Winter's conclusion that normal families function better than delinquent families on decision-making tasks was based on their assumption that high Spontaneous Agreement scores, high Choice Fulfillment scores, and low Decision Time implied better family decision-making processes. Alexander's finding that normal families functioned better than disturbed families was based on his assumption that supportive communication was characteristic of well-functioning families whereas defensive communication was characteristic of poorly functioning (disturbed) families. Ferreira and Winter's finding that Spontaneous Agreement scores in normal families were correlated positively with the age of the child corroborated Alexander's finding that, in normal families, supportive communication was reciprocal (i.e., the more one member communicated supportively, the more supportive communications he/she received). Conversely,

Ferreira and Winter's finding that, in delinquent families, Spontaneous Agreement scores were not correlated positively with the age of the child supported Alexander's finding that, in delinquent families, supportive communication was not reciprocal.

Hetherington, Stouwie, and Ridberg found that normal families expressed less total conflict, less hostility, more warmth and that parents were less power assertive than families with delinquent children. Parents in the normal families studied were more willing to listen to their son than parents in delinquent families. Comparing these interaction dimensions to those used by Alexander, the normal families in the Hetherington et al. sample exhibited greater supportive communication (warmth, listening) and less defensive communication (power assertiveness, hostility and conflict) than the delinquent families, lending further support to Alexander's similar findings. Also Hetherington et al. found that interaction in families with girls followed similar patterns as that in families with boys (except that in families with girls the patterns were weaker). This finding was somewhat supported by Alexander, who failed to find any difference on supportive or defensive communication due to sex, or to the interaction between sex and group membership.

These studies support the idea that normal families function better than delinquent families. This was evidenced both by their differences on static agreement and satisfaction measures and their problem-solving procedures. On static agreement and satisfaction measures, normal families showed greater initial agreement before any family discussion took place, and a greater frequency of individual

choice fulfillment following family discussion. During the process of solving family problems, normal families demonstrated more sensitive, caring, warm, empathic-supportive communications and fewer hostile, power assertive, conflictual, judgmental-dogmatic, and indifferent-defensive communications than delinquent families.

Theory Applied to Treatment

The two counseling programs evaluated in this study are expected to alter communication patterns in families with acting-out adolescents to make them more similar to communication patterns in normal adolescent families. Both programs are also expected to improve adolescent self-concept and to reduce adolescent acting-out. This matching-to-sample philosophy is advocated by Parsons and Alexander (1973) and is used by many clinical researchers (Katz et al., 1975; Stanley, 1978). To "match the sample" of normal functioning families, a counseling program for families with an acting-out adolescent should teach family decision-making strategies and increase the incidence of mutual positive reinforcement within the family. These changes are expected to alter the system to allow the natural internal resources of the family to take over and maintain a new, more functional balance.

Overview of Remaining Chapters

In Chapter 2, literature relevant to treatment programs for dysfunctional adolescent families is reviewed. The literature reviewed is in three main areas: (1) concurrent treatment of more than one family member, (2) treatment of the identified acting-out adolescent

only, and (3) treatment provided by paraprofessionals through a community-sponsored crisis center.

Chapter 3 contains a review of measurement instruments designed to assess family interaction, adolescent self-concept and adolescent drug and delinquent behavior.

Chapter 4 includes an outline of the treatment programs offered to adolescent families in this study, along with an evaluation of those programs. Examined are such details as a description of the sample, the measures used (including reliability data), design, hypotheses, and method of analysis.

In Chapter 5, the outcome of the data analysis is presented.

Chapter 6 contains a discussion of results, along with their implications for further research.

CHAPTER 2

REVIEW OF THE TREATMENT LITERATURE

This chapter includes a review of literature relevant to treatment in families with acting-out adolescents and treatment by paraprofessionals in a community crisis center. The review is organized into three sections: The first includes a summary of research in the area of family change as a result of whole family treatment; the second section includes a review of group treatment programs for the identified adolescent only; the third section is a review of the literature related to treatment by paraprofessionals through a community-sponsored crisis center.

Change as a Result of Family Treatment

Only recently have researchers studied whether and how families change as a result of certain treatment programs. The goal of this kind of research is to discover whether a given treatment has resulted in the desired change in family behavior. Reliable instruments had to be developed to measure family behavior, and data on normal family interaction had to be gathered to provide a guide for setting treatment goals. Much of this work regarding families with acting-out adolescents was done in the late 1960s through early 1970s, and is reported in Chapter 1 (normal family interaction) and in Chapter 3 (family interaction measures).

Evaluation of family treatment programs usually involves one subject population sorted into two or more groups, each receiving a different treatment, with change as a result of treatment being measured with a posttest. Often many variables are measured, and each variable is analyzed separately using either t tests or analyses of variance. The problem of very large experimentwise error rates which result from this repeated univariate analytical approach greatly affects interpretation of research results.

Experimentwise error rate can be estimated by using the formula presented by Hays (1963, p. 471):

$$j(\alpha) \geq \text{experimentwise error rate} \geq 1 - (1 - \alpha)^j$$

where j = number tests performed

α = probability of the occurrence of a Type I error

The upper limit of this range assumes perfect dependence among the tests. The lower limit of the range assumes the tests to be independent. For simplicity's sake, the experimentwise error rate reported for each of the studies reviewed in this chapter was figured using the upper limit of the range:

$$\text{experimentwise error rate} = j(\alpha).$$

Therefore, the value given is the most conservative one.

The experimentwise error rate is helpful in evaluating studies with many dependent variables, each examined by a constant level for α . As experimentwise error rate increases, more care must be taken in the interpretation of a few significant differences. Thus finding some significant differences when evaluating many variables is not, in itself, strong evidence of difference between the groups.

Parsons and Alexander Study

A study evaluating the effects of a short-term treatment program for families with acting-out adolescents was carried out by Parsons and Alexander (1973). The researchers used a "matching-to-sample" philosophy. Knowing the interaction patterns of normal families, they designed a treatment program that would alter the interaction in delinquent families to approximate more closely that of normal families. Their sample comprised 40 mother-father-child triads. Each identified adolescent child had been arrested or detained by local juvenile court authorities for running away from home, being habitually truant from school, or being generally unmanageable.

Families were randomly assigned to one of four groups. Using the Solomon Four-Group design, there were two treatment groups and two control groups. One treatment group and one control group received a pretest while the other two groups did not. Control-group families who received a pretest (PCP) received no treatment of any kind. Control-group families who did not receive a pretest (CP) received what the researchers called "a non-specific form of professional attention--in this case, group discussions focused on feeling expression led by a professional psychologist" (p. 197). This was called an attention-placebo group, and was clearly a variant of the Solomon Four-Group design.

The two treatment groups, PTP and TP, took part in identical programs. The treatment was administered to each family triad separately, in one 2-hour session each week for 4 weeks. Participating families were also given a therapy manual that discussed the goals

of the program and the means used to meet those goals. Each family was to read and refer to the manual at home. Using the "matching-to-sample" philosophy referred to earlier, the researchers identified several "normal family" behaviors and structured their program to teach those behaviors to delinquent families. The sessions focused on three normal family behaviors: (1) to differentiate family rules from requests--behaviors that are expected from those that are optional, (2) to develop reciprocity in the exchange of positive responses through the development and use of a token economy system, and (3) to increase the variability of family communication patterns, thereby allowing more effective decision-making patterns to emerge and to ensure equality as well as clarity in communications.

Six dependent measures were chosen to evaluate the impact of treatment interventions. These measures fell into two categories: accuracy-of-perception tasks and family interaction patterns. The accuracy-of-perception category was assessed using two measures--a "behavior specificity" task and a "vignette interpretation" task. The behavior specificity task called for each family member independently to list three behaviors he/she would like the other two family members to change, and then to list three behaviors the person thought each of the other two family members would want him/her to change. Each person listed 12 items; the total number of perfect matches, by pairs, was the family score. The vignette interpretation task presented three child behavior situations, each calling for parental response. Independently, family members were to describe what action they expected both the parents and the child to take in each situation.

Each person listed a total of six actions; again, the total number of perfect matches, by pairs, was the family score.

The family interaction category was assessed using four measures: (1) amount of silence, (2) frequency of simultaneous speech, (3) duration of simultaneous speech, and (4) equality of speech as measured by the variance around the mean number of words spoken by each family member. To assess these interaction variables, family members were given 20 minutes to discuss their independent responses to the two accuracy-of-perception tasks; this discussion was audiotaped, then rated.

A separate 2 x 2 ANOVA was used to test for treatment, pretest, and interaction effects on each of the six dependent variables. In all, 18 statistical tests were performed, with an experimentwise error rate of .90.

Parsons and Alexander reported no significant pretest effects. They reported three pretest by treatment interactions on three of the four family interaction variables assessed: (1) amount of silence, (2) duration of simultaneous speech, and (3) equality of speech. On the effects of treatment, Parsons and Alexander found significant differences on four variables: (1) amount of silence, (2) frequency of simultaneous speech, (3) duration of simultaneous speech, and (4) vignette interpretation. This last difference was in the direction opposite to that predicted. These findings, along with group means, are summarized in Table 2.1.

Table 2.1: Group Posttest Means and F Ratios for Interaction and Content Measures

Interaction Measure	<u>M</u>				<u>F</u> (df = 1/36)		
	<u>PTP</u>		<u>-TP</u>		Effect of pre-testing	Effect of treatment	Interaction
	Group A	Group B	Group C	Group D			
Amount of silence	196.30	112.10	202.68	215.10	2.99	6.95*	5.42*
Frequency of simultaneous speech	5.76	7.43	3.77	1.85	<1.0	13.30	2.98
Duration of simultaneous speech	23.38	39.38	15.25	6.98	<1.0	16.20	4.43*
Equality of speech ^a	453.45	1943.59	3107.19	1495.13	<1.0	2.13	4.22*
Behavior change ^b	3.6	3.1	3.1	5.7	<1.0	<1.0	<1.0
Vignettes ^b	6.4	2.2	4.7	3.2	1.42	5.18*	<1.0

Note. From "Short-Term Family Intervention: A Therapy Outcome Study" by B. V. Parsons and M. F. Alexander, Journal of Consulting and Clinical Psychology, 1973, 41, 195-201.

Key: P = testing (pre- or posttest)
T = treatment
C = control

^aLower score represents smaller variance, that is, more equality.

^bFrequency of agreement.

*p < .05.

Parsons and Alexander stated, "these findings indicate that the treatment manipulation did in fact produce significant changes in the interaction patterns of the treated families" (p. 199). Because of the contamination of the control-group experience by the inclusion of a placebo treatment in the posttest-only condition, group means were closely examined to interpret the findings. On all measures showing a treatment main effect, the placebo-only group did less well than the pretest control group, indicating that the researchers were correct in asserting that the placebo treatment would not positively affect outcome scores. The placebo acted as a true control and hence did not alter the conclusions of the study.

The treatment program evaluated by Parsons and Alexander did indeed improve family interaction patterns in the target population.

Katz, Krasinski, Philip
and Wieser Study

Katz et al. (1975) explored the effectiveness of short-term family therapy. Their sample comprised 17 families, each meeting the following eight criteria: (1) two parents and their natural or adopted children, intact for at least four years; (2) families no larger than six members; (3) all family members living at home; (4) parents between the ages of 25 and 50; (5) all children born in Canada and parents fluent in English; (6) children between the ages of 4 and 21; (7) gross yearly family income of at least \$10,000; and (8) family agreement to participate in the research study. The six families in the experimental group and the five families in the randomly equivalent control group were selected from a larger group of

families seeking help at a local mental health center. Each family had a child identified as having problems. (No explanation of the types of problems was given.) In addition, these families all agreed to participate in therapy as a unit. A nonequivalent control group of six families was randomly selected from a list of 60 normal families with no known disabilities or disorders. The researcher included this nonequivalent control group to test for the influence of time alone.

Each subject family was tested during an initial contact at the mental health center. During this first contact, each family was given an unspecified family planning task to work on for 5 minutes. This interaction was videotaped, and the tape was later transcribed. The transcription, along with the video and audio tapes, was rated using Riskin and Faunce's Family Interaction Scales (1970a, 1970b, 1970c). These scales are discussed in greater detail in Chapter 3.

Each family in the treatment group then received four family therapy sessions over a 4- to 6-week period. The sessions were provided by a local psychiatrist specializing in child and family psychiatry. There was no indication of what these sessions included or how long each lasted. Following treatment, each family was posttested using the same procedure as the pretest. Families in the randomly equivalent control group and the nonequivalent control group received no therapy and were posttested after 4 to 6 weeks.

Katz et al. had five hypotheses to test: (1) Collectively, all groups will change between the pre- and posttest. (2) The control group will change in a negative direction. (3) The nonequivalent control group will change (no specific kind of change predicted).

(4) The treatment group will change in a positive direction. (5) There will be a difference between the treatment group and both control groups on pre and post gain. The researchers defined positive change as movement toward Riskin and Faunce's (1975) description of adequately functioning families: "a tendency towards the middle range of clarity in expressing content material, an abundance of humor, less topic change, more information sharing rather than commitment demands, freedom to express differences but a high amount of agreement, a wide range of affectivity and a high number of positive relationships" (p. 37).

The Family Interaction Scales (FIS) used to assess family behavior patterns yield 29 variables; each was analyzed separately using two nonparametric statistics. The Mann-Whitney U Test was used for all pair comparisons and the Kruskal-Wallis Analysis of Variance was used for multiple group comparisons. In all, 145 statistical tests were performed, yielding an experimentwise error rate of 7.22.

The high experimentwise error rate of 7.2+, and the very few significant differences found on the family interaction variables measured, combine to challenge the researchers' claim of a successful intervention program. Nothing in the data indicated that change occurred.

Beal and Duckro Study

An evaluation of a juvenile-court-sponsored short-term family counseling program was reported by Beal and Duckro in 1977. This program was aimed specifically at families with juvenile status offenders (JSO)--teenagers whose offenses would not be considered

criminal if they were committed by an adult. The most common status offenses are running away from home, school truancy and repeated disobedience to parental rules. The goal of the counseling program was to divert these families from the usual court system. The researchers felt such diversion was important because they believed that allowing the juvenile status offender to be treated in the same manner as the juvenile delinquent encourages the development of true delinquent behavior, adds to the already existing problems of the family, and is costly to society in general. They suspected a mental health approach to the problem would be superior to a legal approach. Accordingly, the dependent variable for the evaluation of the JSO Diversion Program was the number of cases terminated without court action. In juvenile status offense cases, parents petition the court for help in managing their child. For the case to be terminated without court action, the parents need to withdraw their petition. This parental action--withdrawal of petition--was considered evidence of treatment program success.

The treatment sample of 44 families was chosen randomly from all families participating in the voluntary JSO Diversion Program during a particular month. The researchers did not indicate the exact program acceptance rate of eligible JSO families; they merely indicated that a "large proportion of families accepted this alternative" (p. 78). The control group of 54 families was chosen randomly from all the JSO families referred to the court during the same month one year earlier, before the JSO Diversion Program had been in effect. In this way the

researchers controlled for seasonal variations in types and severity of offenses.

Treatment consisted of six to eight family sessions focused directly on resolving the current problem without court action. Initially, crisis intervention techniques were used to work through anger and frustration and place the immediate crisis of the identified teen within a broader family perspective. Later in the counselling experience interventions were aimed at modifying unspecified familial interaction patterns. The control group experienced the traditional probation officer/identified teen contact, with little or no family participation. In both treatment and control groups, however, the goal was to keep the teen out of the court system.

Data on the diversion of the treatment and control groups were analyzed using a chi-square test for independent samples. The treatment group had a significantly greater proportion of cases closed without court action (83%) than did the control group (65%) ($\chi^2 = 3.95$, $df = 1$, $p < .05$). Beal and Duckro concluded that the JSO Diversion program had successfully achieved its purpose.

A criticism of this research is directed at the equivalency of the treatment and control groups. The treatment group consisted wholly of volunteers, whereas the control group did not. Presumably, families who would have rejected the JSO Diversion Program had it been available remained in the control group, whereas similar families would not have been in the Diversion Program. This variable of acceptance, willingness to participate in a family treatment program, may account for some or all of the difference found between the two

groups on the successful diversion rate measure. (Although the authors indicated a high acceptance rate of families in the JSO program to be in the research study, they did not note the acceptance rate of the JSO program itself by the entire population of eligible court families.) An additional criticism of Beal and Duckro's research is the lack of information on the longer-term effects of this program. Immediately following treatment, many families withdrew their court petitions. Did these families later (1 month, 4 months, etc.) resubmit the petition? In the absence of any information on basic changes in family interaction patterns or attitudes, a single behavioral measure taken at one time offers little support for the hope of long-term change.

Stanley Study

A program for adolescent families, designed to teach methods of inductive discipline and problem solving, was conducted and evaluated by Stanley (1978). The program sought to affect the moral atmosphere or justice structure of the family, as evidenced by improved family communication, attitudes, and decision-making patterns. Stanley used a definition of moral atmosphere or justice structure developed by Kohlberg, Scharf and Hickey (1972): The justice structure is "the principles which govern the assignment of rights and duties and define the proper distribution of the benefits and burdens of social cooperation" (p. 111).

The families in Stanley's study were volunteers, all of whom responded to a letter sent by school authorities describing the

program. All families were Caucasian Christians and had at least one child in the ninth or tenth grade in the local public high school. Only families in which both parents and the adolescent child agreed to participate were accepted. They were predominantly lower-middle-class families, with parents holding jobs in the skilled trades or the nonmanagerial white-collar category. There was no mention of whether the adolescents in the family had been identified by sources outside or inside the family as having any particular kinds of problems. Families were sorted into three groups, according to most convenient meeting times: (1) Treatment Group I--All family members attend class sessions. Five families, including 10 parents and 7 adolescents, were in this group. (2) Treatment Group II--Only parents attend class sessions. Six families, including 12 parents and 6 adolescents, were in this group. (3) Control Group--Five families, including 10 parents and 5 adolescents, were in this group and received no treatment.

During the week preceding the program, all families were pre-tested. The week after the program ended, the families were post-tested, using the same procedure as in the pretest. Four tests were administered in this fashion, yielding nine variables at each of the two points in time. For the two treatment groups, five additional variables were assessed by means of tape recordings of the first and last family meeting. These family meetings occurred weekly from the fourth through the tenth week of the program. Also, both treatment groups participated in a follow-up testing on one variable 1 year after the program ended. In all, 14 variables were measured on the

two treatment groups and a subset of 9 variables were measured on the control group. These variables were analyzed using nine Analyses of Covariance and five Analyses of Variance for repeated measures. These 14 analyses yielded an experimentwise error rate of .62.

The following four instruments were administered to all groups, before and after treatment: (1) the Ferriera-Winter Questionnaire for Unrevealed Differences (1965), using the positive choice fulfillment measure only; (2) the modified Parental Attitude Research Instrument, originally developed by Schaefer and Bell and modified by Cross and Kawash (1968); (3) the Family Decision-Making Attitude Scale, developed by Stanley herself; and (4) the Kohlberg Moral Judgement Interview (1958). By means of tape-recorded family conferences, the two treatment groups were also assessed on five variables: (1) ratio of parent talking time to total conference time, (2) number of decisions reached by consensus, (3) number of parents' ordering responses, (4) number of parents' personal feeling or opinion responses, and (5) number of parents' reflecting or summarizing responses. Families in the two treatment groups also were given the Kohlberg Moral Judgment Questionnaire 1 year after the program ended.

The two treatment groups received the same program; the difference between the groups centered on who in the family participated. All treatments were given in a group. In Treatment 1, both parents and adolescent children participated in the group, and in Treatment 2, only the parents participated in the group. The program required 10 consecutive weekly group sessions, each lasting 2.5 hours, and led by two people--the experimenter and a specially trained school counselor,

both female. The curriculum design was influenced by an Adlerian approach to family education, as presented by Dreikurs and colleagues (1959) and by Gordon's Parent Effectiveness Training model (1970). The main emphasis of the curriculum was on resolving conflict and setting rules, using active listening skills as the major tool. The program was divided into four main phases. During Phase I the focus was on communication skills training; empathic listening and constructive confrontation were the major areas of emphasis. This phase took 3 weeks. Session 1 included an introduction to the program and a presentation of the rationale. Parents were encouraged to reflect on their own adolescence and the teenagers (if present) were invited to share their current experience as adolescents. Session 2 included a presentation of listening skills, based on a blend of Gordons' and Carkhuff's (1971) work. After the presentation, instructors modeled the desired behaviors and encouraged the participants to role play the skills. Home practice was also encouraged. Session 3 was devoted to confrontation techniques; the "I" message defined by Gordon was the major strategy taught.

Phase II also lasted 3 weeks, and was devoted to exploring the weekly family meeting as a forum for family conflict resolution. Each family was encouraged to begin using the family meeting, and was instructed to audiotape the sessions for class discussion and instruction. Session 4 (the first session in this phase) presented the family meeting procedures and encouraged discussion of family rules--how they are made and the problems surrounding them. It was stressed that child participation in the rule-making procedure reduces the

incidence of disobedience. Sessions 5 and 6 consisted in discussing the on-going family meetings, using appropriate role-playing situations to explore the rule-setting procedure and to generate alternative procedures to increase the effectiveness of the process.

Phase III was one session long (Session 7) and focused on conflict resolution. In response to the now-present frustration with existing family methods of conflict resolution, participants were taught a six-step method to resolve conflicts. They practiced the method in small groups, first using situations posed by the leaders and then using examples from their own family experiences.

Phase IV focused on value clarification and took up the remaining three sessions. Participants were encouraged to explore and share their own values concerning a number of dimensions. The role that values play in determining behavior was discussed, as were methods of handling value conflicts in the family.

Stanley tested five hypotheses across the three groups, and then explored five others comparing just the two treatment groups. The first five hypotheses are now listed, along with the results of their analysis. Hypothesis I: Families who have taken the course will score significantly higher in conjoint decision-making effectiveness than families who did not take the course. This hypothesis was tested with an ANCOVA, using Ferreira and Winter's Unrevealed Differences measure, and was accepted, $F = 4.918$, $df = 2,12$, $p < .05$. A post hoc Scheffe examination showed no difference between the two treatment groups, but did show a significant difference by pairs between each treatment group and the control group. Hypothesis II: Parents who

have taken the course will score significantly higher in nonauthoritarian attitudes toward child rearing than parents who did not take the course. This hypothesis was tested with an ANCOVA using the PARI to examine fathers' nonauthoritarian behavior, mothers' nonauthoritarian behavior, and combined parental nonauthoritarian behavior. The hypothesis was accepted, based on the difference shown by fathers between groups and the combined parental score between groups, Fathers: $F = 4.254$, $df = 2,12$, $p < .05$; Combined Parents: $F = 7.056$, $df = 2,25$, $p < .01$; Mothers: $F = 2.655$, $df = 2,12$, n.s. On both variables showing a difference between groups, the post hoc Scheffe demonstrated significant differences only between the parents-only treatment group (Group 2) and the control group. Hypothesis III: Parents who have taken the course will score significantly higher in equalitarian attitudes toward family decision making than parents who did not take the course. This hypothesis was tested with an ANCOVA using the Family Decision Making Attitude Scale to examine the father's attitude, mother's attitude, and combined parental attitude. The hypothesis was accepted, based on the differences shown by fathers and by combined parental attitudes, Fathers: $F = 6.451$, $df = 2,12$, $p < .05$; Parents: $F = 7.289$, $df = 2,25$, $p < .01$; Mothers: $F = 2.302$, $df = 2,12$, n.s. On both variables showing a difference between groups, the post hoc Scheffe failed to demonstrate a difference between the two treatment groups, but did show a significant difference between each treatment group and the control group. Hypothesis IV: Adolescents who have taken the course with their parents will score significantly higher in equalitarian attitudes toward family decision making than

adolescents in either of the other two groups. This hypothesis was tested with an ANCOVA using the Family Decision Making Attitude Scale to examine the adolescents' attitudes. The data failed to support the hypothesis, $F = 3.660$, $df = 2,11$, n.s. Hypothesis V: Adolescents who have taken the course with their parents will score significantly higher in their level of moral reasoning than adolescents in either of the other two groups. This hypothesis, tested with an ANCOVA using the Kohlberg Moral Judgment Interview, was not supported, $F = 1.62$, $df = 2,14$, n.s. The researcher then examined the data post hoc using a t test for correlated data on the pre- and posttest scores for each group separately. The family treatment group (Group 1) showed significant change, $t = 2.92$, $p < .025$, but neither of the other groups demonstrated change. However, the ANCOVA demonstrated that when Group 1 was compared to Groups 2 and 3 there was no difference between groups.

Following the comparison of treatment groups to control group, Stanley compared the two treatment groups to each other using data collected in the audio tape recordings of the first and last weekly family meetings. These data were analyzed with an analysis of variance for repeated measures. For the measures of (1) parent talking time, (2) number of consensus decisions, (3) number of parent ordering responses, and (4) number of parent personal feeling or opinion responses, no differences were demonstrated between groups. Both groups changed equally (and significantly) on all variables from pretest to posttest.

Summarizing the results, five of the nine comparisons between the three groups showed significant differences. In each case, the differences were shown on post hoc tests to be between one or both of the treatment groups and the control group. No differences were found between the two treatment groups on any of the variables. The five measures taken during weekly family meetings of the two treatment groups only, resulted in all comparisons showing time to be a significant variable for both treatments. However, no Time x Treatment interaction was discovered.

Based on these data, Stanley concluded that both treatment programs altered family communication patterns. She maintained that the total family group (Group 1) was more "effective in changing parental behavior, whereas the parent group had more of an impact on parental attitudes" (p. 116).

This study by Stanley outlined a comprehensive family/parent education program addressing communication and problem-solving needs of the adolescent family. However, the evaluation of this program leaves much to be desired. There are two criticisms. First, in all analyses, the researcher used the individual as the unit of analysis, twice violating assumptions of independence without discussing the possible implications of this violation for the results. A set of parents was treated as two independent subjects, when in fact they were together for treatment. Likewise, families (or parental pairs) were grouped for part of the treatment and a portion of the treatment effect might properly result from the recurring interaction of the stable treatment group in addition to the specifics of the treatment program.

The violation of the assumption of independence probably resulted in a more liberal test than the reported $\alpha = .05$ and a higher experiment-wise error rate than .62.

As a second criticism, only 6 of the 14 variables were direct measures of family behavior. The remainder were questionnaire measures of parental perception of behavior and of family member attitudes. It is not known exactly how close the correlation between actual behavior and the perception of that behavior is. Indeed, in Chapter 1 it was reported that Hetherington et al. (1971) found little correlation between actual behavior, as measured by a structured interaction task, and the seemingly related scales of a questionnaire measure. Therefore, Stanley's claim to have produced behavior change is somewhat questionable in light of the instruments she used to measure that change.

Parent Effectiveness Training

Gordon (1970) developed and syndicated a relatively new parent education program through the Effectiveness Training Associates (ETA). The ETA trains certified instructors and controls the presentation of its programs by providing materials and ongoing supervision to practicing instructors. The ETA programs have not been thoroughly evaluated; the research that has been done on these programs has been conducted only by persons apparently affiliated with the organization. Of the 17 studies cited by the ETA in a 1975 research summary paper (ETA, 1975), being evaluations of their programs, only one was published (Larson, 1972). The remainder were unpublished doctoral

dissertations, master's theses, or research studies. It is difficult to review the original research on effectiveness training programs. The one published research study is reviewed next.

Larson (1972) reported an evaluation of several parent education programs offered by a junior high school in a midwestern state. All of the programs were aimed at improving family communication patterns and associated attitudes in both parent participants and their children. The sample comprised parents only; all parents had children at a local junior high school and had volunteered for one of the several treatment programs. A control group was made up of parents who could not get in the program of their choice because of course size limitations or scheduling conflicts. In all cases, these parents later attended a course and were counted a second time as experimental subjects. The report provided no demographic data on the sample.

Each group was pre- and posttested, and raw scores were compared. No statistical tests were used to analyze the data. Seven different instruments were administered to participating parents to measure change; all were questionnaires or semi-structured written exercises. These measures were the following: (1) an adaptation of the Sears Self-Concept Inventory for Children, administered to parents; (2) an adaptation of the Goal Attainment Scaling System developed by Kiresuk and Sherman (1970); (3) a problem checklist referring specifically to concerns surrounding children and family atmosphere; (4) the Hereford Parent Attitude Scale; (5) self-report logs in which parents were asked to record anything they said, did, or handled differently as a result of group participation; (6) a parent concern survey containing typical

parental problem areas; and (7) a survey of parent written responses concerning their experiences in the group meetings.

Each of the three treatment groups met for a 3-hour session each week for 8 weeks. Group 1 received the Achievement Motivation Program (AMP), which emphasized individual strengths and sought to help participants identify their strengths, resources, goals, and values. Individual conflicts were studied in the context of the individual's strengths. This program was aimed toward adding to each participant's strengths through individual discovery and group reinforcement. Group 2 received the Parent Effectiveness Training program, which helped parents explore the source of conflicts between them and their child, and redefined behaviors and interactions that were termed "problems." The program then taught listening and problem-solving skills, which enabled parents to work with their children to resolve the newly defined "problems" in a mutually agreeable way. Group 3 received a Discussion-Encounter Group (DEG) experience, which encouraged parents directly and accurately to express their own feelings about such topics as dating, hours, study habits, dress, and manners. Structured exercises were provided to assist participants in this task.

Larson examined the raw data and means derived from the data and concluded from the gain scores that both the Parent Effectiveness Training group and the Achievement Motivation group "showed substantial reduction in those areas of concern that led parents to join the groups" (p. 264). He further concluded that the motivation program was especially effective in improving parental self-concept and the PET program increased parents' confidence in their parental role.

The Discussion-Encounter Group produced slight negative changes on some measures and little or no change on the remainder.

Larson's study is severely limited by the lack of a statistical analysis. Even the use of the mean as a group summary statistic is weakened by the researcher's failure to present the standard deviation or variance of the scores. There is no way of knowing whether these changes are significant. Also, the total lack of demographic data on the sample prohibits generalization to other groups. A second major flaw in the study is the absence of any direct behavioral measure. This is particularly serious because one of the major goals of these programs was to produce behavior change. As stated previously, behavior change cannot be directly inferred from responses to attitude or behavior questionnaires. A third flaw, relatively minor in light of the already stated problems, is the use of some subjects as members of both the control group and one of the treatment groups.

Some of these major criticisms also apply to other ETA program evaluations. None of the 16 studies summarized in the Effectiveness Training Associates' 1975 research bulletin used standardized direct behavioral observation methods. All relied on questionnaires measuring attitudes, perceived problems, perceived behavior of self or others, or experimenter perceptions of behavior that were not tested for reliability. Six of the 16 studies used a pre-experimental design, with all subjects entering a single treatment group. When statistical analyses were employed in studies with a multi-group design, a univariate statistic was used repeatedly to analyze multiple variables.

Discussion of Family Treatment Research

Reviewing all the studies in this section, several conclusions can be drawn. In several cases, major design, measurement, or analysis deficiencies clouded the interpretation of research results. The findings of Katz et al., Stanley, and Larson cannot be accepted with confidence due to flaws or limitations in their design and analysis. The Parsons and Alexander program as well as the Beal and Duckro program have strong research evidence to support their effectiveness.

Three treatment programs reviewed dealt with each family separately. Parsons and Alexander studied families from a juvenile court population. They provided a brief series of sessions that taught the family to (1) differentiate rules from requests, (2) develop reciprocity in the exchange of positive responses, and (3) increase the variability of family communication patterns. An interesting concept presented in this study is the "matching-to-sample" philosophy, which assumes that if a given delinquent family can change its interaction patterns to be more similar to those of normal families, the delinquent family will begin to behave more like normal families in other areas; i.e., the delinquent adolescent will stop the unacceptable behavior. Underlying this philosophy is a belief in the healing powers of the family system itself. Katz et al. provided an unspecified form of brief family therapy and discovered improvement in treatment families not found in control families, as measured by numerous variables. Beal and Duckro measured only one variable, the rate of successful diversion of juvenile court families from the official adjudication procedure. They provided eight conjoint family therapy sessions aimed

at resolving, through interpersonal change, whatever crisis had sent the family to court. They demonstrated a diversion rate that was higher than that achieved by the traditional probation officer approach.

The final two programs reviewed in this area of family change through treatment provided family group experiences. Stanley took normal volunteer families from a school and provided a 10-week structured course addressing both family communication skills and attitudes. The program focused on conflict resolution and rule setting, using active listening skills as the major tool. The researcher found change on both communication and attitudinal variables. Larson also worked with volunteer parents from a school setting and worked toward changing both communication patterns and attitudinal variables. He provided three different treatment programs and compared them all to a no-treatment control group. Parent Effectiveness Training (PET) was offered to one group. This program taught the use of listening and problem-solving skills to resolve parent-child conflicts. A second group was offered an Achievement Motivation Program (AMP), which focused on identifying the participants' personal strengths and helped them to build on those strengths. The last treatment program was a Discussion-Encounter Group (DEG) experience; it focused on increasing the awareness and sharing of feelings about such controversial parent-child topics as dating, dress, and manners. Larson concluded that both PET and AMP were effective in producing desired change; however, his data were not analyzed statistically.

The greatest need at this time is for a treatment-evaluation study that combines strong research methodology with an appropriate analysis. The results of such an effort will be more easily interpreted and, if significant, will indicate true effectiveness of the treatment program.

Change as a Result of Adolescent Group Treatment

Group counseling has long been recognized as an effective mode for the treatment of adolescents (Amini & Salasnak, 1975; Gilliland, 1968). Jones (1968) saw the effectiveness of the therapeutic group lying in its encouragement of social interaction within a secure setting which fosters the expression of feeling. Group counseling has been used with teenagers experiencing a wide range of problems including acting-out behavior, underachieving at school, drug abuse, and delinquency. Experimental research using behavioral instruments to measure the effects of group counseling is scarce, but there are many published accounts of group counseling programs evaluated with less rigorous methodology (Rachman, 1969; Barclay, 1969; Riegel, 1968; Rabinowitz, 1973; Truax, 1971; Woody & Woody, 1975). Reviewed in this section are adolescent group counseling programs evaluated with an experimental design.

Gilliland Study

A study evaluating the effects of a group counseling experience for black high school students was carried out by Gilliland (1968). His sample consisted of 30 black teenagers, randomly drawn from the high school population and randomly assigned to either a control or

a treatment group. Boys were kept separate from girls, so there were two control groups and two treatment groups. There was no attempt beyond random selection to equate the groups on factors of age, ability, school achievement, grade point average, grade level, or attendance percentages. The two treatment groups received 1 hour of group counseling each week for the entire academic year, for a total of 36 sessions. The counseling sessions were conducted using a group-centered approach with the leader exhibiting unconditional positive regard for the participants and striving to actively involve all members in the experience. The control group received no group counseling.

Seven measures were selected to evaluate change as a result of group counseling. These measures were the vocabulary, reading, and English usage scales of the Cooperative English Achievement Tests; the Occupational Aspiration Scale; the Vocational Development Inventory; the Index of Adjustment and Values; and grade point averages.

The data were analyzed using a "least-squares analysis of data, with unequal subclass numbers, . . . employing the matrix-inversion method of solving for the partial regression coefficients" (Gilliland, 1968, p. 148). This analysis yielded an analysis of variance table with main effects of group and sex, with any group by sex interaction not reported. Fourteen statistical tests were done, with an experimentwise error rate of .14.

Gilliland reported significant positive findings on five of the seven tests of group effect. The three scales of the Cooperative English Achievement Tests, the Occupational Aspiration Scale, and the

Vocational Development Inventory all showed significant difference at the $p \leq .01$ level.

On the Index of Adjustment and Values measure, the experimental groups demonstrated a nonsignificant change in a negative direction, while on the grade point average measure change was in a positive, but not quite significant, direction. None of the tests of the effect of sex identity provided significant.

In summary, Gilliland feels that the group counseling experience improved the participant's academic achievement and vocational aspirations and development. The group also served to allow the participants to acknowledge the reality "of the limited opportunities available to Negroes in their particular environmental setting, and no longer [seek] to deceive themselves" (Gilliland, 1968, p. 149).

A major criticism of this study is the fact that subjects were treated in groups, but data were analyzed for individuals. As discussed in the review of family research, the effect of this violation of independence is impossible to estimate, but most certainly functions to liberalize the statistical tests performed.

Warner and Hansen Study

The effectiveness of verbal-reinforcement and model-reinforcement group counseling with alienated high school students was studied by Warner and Hansen (1970). Their sample consisted of 180 students selected randomly from 238 11th grade students who scored at least one standard deviation above the mean on a test of alienation at three different high schools. The subjects were randomly assigned to one

of four experimental conditions. Group 1 received a verbal reinforcement group experience, Group 2 received a model reinforcement group experience, Group 3 received a placebo group experience, and Group 4 was a no-treatment control group. All groups were pre- and posttested using Dean's (1961) scale of alienation.

The two treatment groups were run by behaviorally trained counselors and had six 40-minute sessions, each focused on an aspect of alienation. The first and fourth sessions were focused on powerlessness, the second and fifth sessions on normlessness, and the third and sixth sessions on social isolation. The counselor's aim was "to get the students to look at the positive aspects of their situation and to consider positive steps that the students could take to eliminate feelings of powerlessness, normlessness and social isolation" (Warner & Hansen, 1970, p. 170). The only difference between the two treatment groups was the mode of reinforcement. The counselor in the placebo group made no attempt to influence group discussion by focusing attention or by reinforcing statements of group participants.

Dean's alienation scale was used to measure change. The scale yields an overall score and subscale scores on powerlessness, normlessness, and social isolation. A 3 x 4 x 2 univariate ANOVA was used to test for main and interaction effects of counselor, group, and sex on the overall alienation score while a 3 x 4 x 2 MANOVA was used to test for the same main and interaction effects on the three alienation subscales. Each of the 24 statistical tests was evaluated at the $p = .01$ level, with an experimentwise error rate of .14.

The major criticism of this study is again the violation of the assumption of independence which is brought about by treating subjects in groups, and using the individual subject (rather than the group) as the unit of analysis. With the exception of this flaw, the study is well done, and the conclusions are supported by the data. Data from the ANOVA and MANOVA tests indicated that there was no Counselor x Treatment interaction or Sex x Treatment interaction. The comparison using orthogonal contrasts of the two treatment groups to the two control groups resulted in significant differences at the $p = .01$ level on all four dependent variables. The comparison of the model reinforcement group to the verbal reinforcement group yielded no significant differences on any variable and the comparison between the placebo group and the control group yielded no significant differences on any variable.

Warner and Hansen concluded that both reinforcement styles of group counseling reduced the amount of student alienation, with no difference in effectiveness between the two different reinforcement styles, verbal-reinforcement and model-reinforcement.

Sarason and Ganzer Study

Using institutionalized delinquent boys, Sarason and Ganzer (1973) investigated the effectiveness of including active role playing in a structured group counseling program based on modeling theory. Their sample consisted of 192 male first offenders between 15½ and 18 years of age. Subjects were randomly assigned to one of three groups, Treatment I, Treatment II, or Control. The three groups were comparable

in age, IQ, diagnostic classification, and type and severity of delinquent behavior. Treatment groups met for 16 sessions, each 1 hour long, over a 5-week period.

Treatment I, the modeling condition, was given to groups of four or five subjects simultaneously, with each group having two leader/models who were trained psychology graduate students. Each session had a specific topic, such as the job interview, that was thought to present particular problems to this population of adolescents. The topic was explored via a role-play scene which was to be enacted during the session. The participants were instructed about what points to pay special attention to, and they observed while the leader/models carried out the scene. The group then discussed the content and outcome of the role play, followed by a re-enactment of the scene with members of the group taking different parts. Each participant was actively involved in the role play.

Treatment II, the discussion condition, maintained the same sequence and content as the modeling condition, but did not employ any role playing. All interaction was strictly verbal, with leaders making interventions analogous to those in the modeling condition. Additionally, half of the groups in each treatment condition were audio or video taped during parts of each session. The taped groups observed or heard their actions and again either copied the model or discussed the interaction, depending on which treatment condition they were experiencing.

The control group received no group treatment, but did receive the general program of the institution, which was also received by members of the two treatment groups.

Describing the dependent measures for this study is difficult because the variables are not clearly or completely stated. Several of the instruments used to measure attitudes and behaviors are listed, but the multiple variables measured by the instruments are not enumerated. Likewise, statistics used to evaluate the data are not presented, but are merely summarized. An especially disturbing feature of this research report is that there is no way to figure the experimentwise error rate because the tests of variables showing no change between groups are not reported.

The researchers concluded that both modeling and structured discussion groups had a positive effect on participants, with no strong or consistent differences between the two treatments. Their strongest evidence in support of this statement is the 3-year recidivism rate of the experimental groups. The recidivism rate of the control group was similar to that of the general population for the institution studied, while the rates for the modeling and discussion treatment groups were much lower. A Chi Square test found the differences between groups significant at $p < .06$.

Block Study

An evaluation of a rational-emotive group counseling program for minority high school students at risk for failure, misconduct, and dropping out was carried out by Block (1978). The subjects were black

and hispanic 10th and 11th grade students enrolled in an inner-city school having a high proportion of pupils from low-income families. All participants were promised one Social Studies credit for successful completion of the program, and each student met the following criteria for the previous year: (1) G.P.A. $\leq$.65, (2) 40 or more absences, (3) 25 or more times tardy, (4) 25 or more class cuts, and (5) five or more administrative citations for disruptive classroom behavior. Additionally, all students had average intelligence and at least 8th grade academic ability. Nineteen boys and 21 girls participated in the program and they had an average age of 16 years, 1 month.

Subjects were stratified by sex and randomly assigned to treatment groups containing eight students each. Two groups received rational-emotive counseling, two groups received human relations counseling, and one group received no treatment and functioned as a control. The rational-emotive treatment was highly structured around predetermined themes with an active, directive, and task-oriented leader (Knaus, 1974). The human relations treatment was somewhat structured with a predetermined psychodynamic topic presented by the leader at the beginning of each session, followed by free-flowing discussion with leader interventions reflective or clarifying in nature. Each treatment group met 5 days a week, 45 minutes each day, for one complete semester. There was a total of 47 sessions.

Three dependent variables were chosen to measure treatment effectiveness: (1) grade point average, (2) class cutting, and (3) disruptive classroom behavior. Disruptive classroom behavior was measured by counting the number of times a student either spoke out of

turn or left his/her seat without permission during a 3-hour period in a regular classroom setting.

The data from each dependent variable were analyzed separately using a repeated measures ANOVA on the pre- and posttest scores. Nine statistical tests were done at $p < .001$, giving an experimentwise error rate of .009.

Analysis of all variables (G.P.A., class cuts, and disruptive behavior) showed significant main effects as well as treatment by time interaction effects. Post hoc examination showed that the rational-emotive treatment was significantly more effective than either the human relations treatment or the control experience in changing the dependent variables in a positive direction.

This study is very well done, and its conclusions can be accepted with confidence. The low experimentwise error rate (.009) combined with a strong experimental design, appropriate analysis, and objective behavioral measures make this study one of the best in the field of clinical research. Any criticism of this study would be limited to the familiar violation of independence created by treating subjects in a group, yet analyzing data individually. As before, the effect of this violation on the results cannot be estimated, but most surely results in a more liberal test of the hypothesis than indicated.

Discussion of Adolescent Group Treatment Research

Block (1978) and Gilliland (1968) used rigorous methodology to evaluate group treatment programs, and their results can be confidently

accepted. Block (1978) demonstrated that a rational-emotive group treatment positively affected the participant's grade point average, class-cutting rate, and disruptive classroom behavior. The rational-emotive treatment was more effective than both a no-treatment control and a human relations group counseling treatment. Gilliland (1968) concluded that a year-long group counseling experience positively affected academic achievement, occupational aspiration, and vocational development. He also found that the group counseling experience helped adolescents develop a more reality-based view of the opportunities available to them in the outside world. Warner and Hansen (1970) evaluated the effectiveness of two kinds of behavior-reinforcement treatment programs. They concluded that both verbal-reinforcement and model-reinforcement programs reduced the amount of student alienation, with no difference in effectiveness between the two styles.

The study by Sarason and Ganzer (1973) was badly marred by methodological and reporting shortcomings. Sarason and Ganzer fail to describe important pieces of their methodology. The dependent variables were not clearly stated and only the comparisons that resulted in significant differences are reported. Furthermore, summary data are not presented in the research report; only discussion of the results is presented. The reader is unable to determine the experimentwise error rate, the number of statistical tests performed, or the number of dependent variables examined. Without these data it is impossible to evaluate the validity of the conclusions drawn by the investigators.

Treatment by Paraprofessionals in a Community-Sponsored Crisis Center

Very little research has been published which evaluates treatment outcomes in a paraprofessional community-sponsored crisis center. In a recent and exhaustive review of the outcome literature on brief and crisis-oriented counseling, Garfield and Bergin (1978) fail to list any research evaluating the effectiveness of paraprofessionals in community-sponsored crisis centers, although they acknowledge the importance of such agencies to the development of these forms of counseling. A study by Berthea (1975) seems to be the only published evaluation of a treatment program offered by a community-sponsored crisis center staff by paraprofessionals.

Berthea Study

This study examined the effects of a short-term group counseling program for drug-abusing adolescents (Berthea, 1978). The community crisis center offering the program provided various kinds of mental health resources for drug abuse, family problems, and personal problems in addition to the adolescent group treatment which was the focus of this study. Counselors for the adolescent group treatment program were college undergraduate students and recent bachelor-degree graduates. No mention was made of professionally trained psychotherapists on the staff.

The experimental design was a modification of a quasi-experimental design with a nonequivalent control group. The treatment sample consisted of 38 teenagers, all meeting the following criteria: (1) no abuse of alcohol or the opiates, (2) between the ages of 15 and 18,

(3) local resident, (4) student at the local high school during the year of the study, (5) unmarried, (6) not employed full time, and (7) abused drugs. The control sample consisted of 136 teenagers who were in five required English classes at the local high school. The treatment group received 12 2-hour sessions over a 6-week period, with new group members beginning at any session.

The control group was thought to represent a cross-sample of the high school population. The control group was tested once (called a pretest for simplicity's sake), while the treatment group was tested both before treatment and 6 weeks after the conclusion of treatment. The experimenter thought that the 6-week time period during which treatment took place was too short to measure any maturation changes and so a posttest of the control group would be unnecessary. Any changes discovered in the treatment group were deemed to be due to treatment effect. The test battery consisted of the Tennessee Self-Concept Scale (TSCS; total positive), the State Trait Anxiety Inventory (STAI; both scales), the Fundamental Interpersonal Relations Orientations-Behavior (FIRO-B; six scales), a Student Survey (seven scales), and a drug-use index.

The pretest data from the treatment group were compared to the data from the control group using a one-way analysis of variance, and the pretest data from the treatment group were compared to the posttest data from the treatment group using a repeated measures analysis of variance (split-plot). In all, 27 statistical tests were performed, for an experimentwise error rate of 1.35.

The 17 comparisons between the treatment and control groups yielded only two significant differences at the $p \leq .05$ level. These differences were on the "wanted control" scale of the FIRO-B and the drug-use index. On both variables, the treatment group scored higher than the control. The 10 comparisons between the pre- and posttest scores of the treatment group yielded five significant differences at the $p = .05$ level. These five differences were on the State Anxiety scale of the STAI, all three Expressive scales of the FIRO-B (Expressed Inclusion, Expressed Control, and Expressed Affect), and the drug-use index.

Bethea concluded that the treatment program was successful in reducing the use of nonprescription drugs, and that this change was accompanied by an increase in the self-determination of the participants in interpersonal relationships.

Criticism of this study centers mainly on the quasi-experimental, or more properly the pre-experimental, design of this study. The nonequivalent control group is not really used as a control, because no posttest was given and change in the treatment group could not be compared to any change in the control group. All the threats to internal validity present in pre-experimental designs are present here. There is no control (however weak) for history, testing, instrumentation, and maturation. (Despite the researcher's argument, 6 weeks between pre- and posttesting may measure change that is attributable to maturation rather than to treatment.) Bethea also violated the assumption of independence by treating subjects in groups and analyzing data individually. Added to these criticisms, the large

experimentwise error rate of 1.35 makes the positive claim of treatment change difficult to accept, because 1.35 "significant" findings would occur by chance and 2 were found.

Bethea might have used his control group more effectively by comparing their scores to the treatment group's posttest scores. This added comparison would have allowed him to comment on the similarity between the post-treatment protocols of the drug-abusing sample and the normal controls. However, this was not done.

In summary, design and analysis flaws do not allow the positive findings of this study to be viewed with confidence.

A methodologically sound evaluation of treatment programs offered by paraprofessionals at a community-sponsored crisis center is yet to be done.

Implications of Previous Research

Suggested Treatment Program

What should a family treatment program aimed at improving interaction in families with an acting-out adolescent include? Hetherington and her colleagues (1971) suggested that normal families demonstrated less conflict, hostility, power-assertive behavior, and more warmth than delinquent families. Alexander (1973a, 1973b) stated that normal families evidenced a reciprocity of supportive communication not found in troubled families. Ferreira and Winter (1965) found that normal families were better decision makers than abnormal families.

Considering these data, and using the matching-to-sample philosophy presented by Parsons and Alexander (1973), a program teaching

decision-making strategies and affecting the balance of mutual positive reinforcement within the family might be effective in improving interaction in families with an acting-out adolescent. Such a program might use elements of both the family education programs advocated by Stanley (1978) and Larson (1972) and the family therapy programs advocated by the Parsons (1973) and Katz (1975) research groups. The family education segment of the treatment program would focus on teaching listening and empathy skills as well as problem-solving methods to groups of families. The family counseling segment would provide each individual family with the opportunity to apply these new skills to the resolution of immediate family crises and the development of improved and lasting positive family communication patterns.

The treatment programs reviewed varied from a minimum four-session experience to a maximum 10-session experience, with total hours of treatment ranging from 8 to 24. It is reasonable, therefore, to assume that a short, intense treatment program might affect family interaction patterns.

Hetherington and colleagues (1971) found a difference in degree but not in kind of family interaction patterns in families with male delinquents, as compared to those with female delinquents. Parsons and Alexander (1973) analyzed sex as a variable in their treatment program and found no significant main effects or group by sex interaction effects. Therefore, sex need not be a variable in a family treatment program. The importance of using standardized direct observational methods to assess behavior was stressed in the research

reviewed, as was use of multiple measures to understand the various aspects of family behavior.

The details of a family program designed to meet the criteria stated above are outlined in Chapter 4.

Research Design

To test the effectiveness of a treatment, a true experimental design is required. The Pretest-Posttest Control Group Design advocated by Campbell and Stanley (1963) controls well for threats to internal validity and requires only one group per treatment situation, lending itself well to use with small samples. The Solomon Four-Group Design is concerned with factors influencing external validity in addition to those influencing internal validity and hence is a stronger design. However, its requirement of two groups per treatment effect makes great demands on a small subject sample.

Riskin and Faunce (1972) indicated that the classic experimental design outlined above and developed for a linear causality model with independent and dependent variables may not be appropriate to explore family interaction, which seems to better fit a circular causality model. Jackson (1965) elaborated on this topic, pointing out that there is no real beginning or end to the stimulus-response chain in family interaction--indeed, there is no chain. Every response is simultaneously a stimulus, both affecting and being affected by the behavior (response/stimulus) of the other. Jackson suggested that family research be focused on the circular patterns of interdependent communication, and that more long-term research be

undertaken. The family interaction research reviewed earlier in Chapter 1 followed Jackson's recommendations and focused on the interdependent communication developed by different kinds of families. For a study evaluating the results of a specific treatment program, however, the theoretical models of behavior become mixed. That is, the evaluation is structured on a linear model and the dependent variable in the evaluation, family communication patterns, is structured on a circular model. The family patterns of communication will no doubt draw the independent variable, the treatment program, into its circular system, and in so doing will alter it. That is, the treatment program for each family is different, because each family is different and demands different behavior from the counselor. A research design that can separate these confounded variables has not yet been developed. It is important, however, to consider how the dependent and independent variable mutually change in the course of the study.

Because of the complexity of interaction in families, multiple measures must be used to explore different aspects of that interaction in hopes of describing the whole more completely. The use of multiple measures in the evaluation of a treatment program requires a multivariate analysis. The experimentwise error rate must be kept below .10; .05 is preferred. This conservative level will result in a more straightforward interpretation of significant results than is possible when using many univariate analyses. Also, care must be taken to use an analysis that is consistent with the experimental design. The multivariate analysis to be used in this study is outlined in Chapter 4.

The problem of how to deal with the violation of the assumption of independence when treating subjects in a group, but analyzing the data individually, is a difficult one to resolve. Its effect on the outcome of the statistical analysis is unknown. Treating the family as the unit of analysis rather than the individual goes part of the way toward minimizing the violation. However, family group treatment requires the group to be used as the unit of analysis.

CHAPTER 3

REVIEW OF MEASUREMENT METHODS

This chapter includes a review of the major family interaction measurement methods, self-concept measures, and literature relating to the validity and reliability of drug-use questionnaires.

Family Interaction Measures

Family interaction assessments require the observation, recording, and coding of interactions as family members work on a shared task. All families in a given study share the same task. While they carry out this task, they are usually audio or video taped. The tape is later transcribed, broken into scorable units, and coded according to a variable number of well-defined categories. This three-step process --task observation, unitizing, and coding--has resulted in a great variety of measurement instruments, which are discussed on the following pages.

Family Tasks

Three general categories of family tasks are used to elicit a sample of family interaction. These three are (1) some variant of a revealed or unrevealed differences questionnaire, (2) a projective technique, and (3) instructions to "plan something to do together." The differences questionnaire technique is by far the most common.

This technique was originally developed by Strodbeck (1951) to study husband-wife interactions, but has since been used with a wide assortment of both related and unrelated groups of people. Each participant is first asked to respond independently to a series of problem situations by selecting one of several listed solutions for each problem situation in turn. An experimenter then selects several of the items showing the greatest number of disagreements among participants. The subject group is then asked to discuss each specially selected situation to arrive at a consensus solution. Strodbeck indicated to each subject group that the statements selected represented items on which there was substantial group disagreement. The revelation of disagreement is the "revealed differences" form of this technique. Variants of the revealed differences form have been used by Mishler and Waxler (1968), Hetherington, Stouwie, and Ridberg (1971), and Alexander (1973). This technique has also been used without informing the group of the existence of differing opinions. This nonrevelation of disagreement is the "unrevealed differences" form of the technique and has been used by Ferreira and Winter (1965), Haley (1964), and Mead and Campbell (1972).

Projective techniques such as the Thematic Aperception Test (TAT) and the Rorschach Test have also been used to generate family interaction data. The family as a whole is asked to make up a story to go with the picture (TAT), or to discuss what they see in the ink blot (Rorschach). When projective techniques are used to study family interaction, the usual content analysis of the completed protocol is ignored, and the family discussion is analyzed using a number of

process variables. Singer and Wynne (1966) used both the TAT and Rorschach techniques to generate a sample of family interaction; Loveland (1967) expanded on their work with the Rorschach, developing his Relation Rorschach for use with couples and families.

A third category of stimulus tasks used to generate a sample of family interaction is the family planning task. This task was used extensively by Riskin and Faunce (1970), who asked the family to "plan something to do together." Katz, Krasinski, Philip, and Wieser (1975) also used a family planning task when they asked their subject families to "discuss what color their next family automobile will be."

Unit of Measurement

The family interaction behavior sample secured through the use of some kind of family task must be broken down into scorable units. Various investigators have generally accomplished this unitization process in four different ways. The smallest unit of analysis is "the act," or the simple sentence. This unit is defined as the simple grammatic sentence. Each unit has a subject and a verb and expresses a single idea. Bales (1951) first used this unit of analysis in the early 1950s with his Interaction Process Analysis technique. Later, Mishler and Waxler used "the act" in their studies of schizophrenic families, as did Singer and Wynne.

The next larger unit of analysis is "the speech," defined as all the words spoken by one person until another person begins to talk. Riskin and Faunce used this unit of analysis with their Family Interaction Scales.

Two or more speeches have been used as a unit of analysis for coding categories requiring a stimulus-response sequence. Mishler and Waxler used this unit for 1 of their 20 coding categories, Acknowledgement Stimulus and Acknowledgement Response, and Riskin and Faunce used it for the Commitment scale of their Family Interaction Scale.

Other researchers have used larger units of analysis. "The idea" or "the theme" unit is not tied to "acts" or "speeches," but cuts across them. Definitions of what constitutes an idea or theme are generally vague or circular. These units are used more often in studies focusing on the content of family interactions rather than on the process.

The entire family transaction can be analyzed as one unit. Ferreira and Winter used the entire transaction as a unit of analysis in their Unrevealed Difference Technique.

A totally different approach to unitizing an interaction for scoring purposes is to use time as a unit measure, rather than tying the unit to language structure (as with "the act") or to speech patterns (as with "the speech" or the stimulus-response sequence). Alexander used time as a unit measure in his studies of defensive and supportive communication in families. He broke the entire video-taped transaction into consecutive 10-second coding intervals. The first 5 seconds of each interval were devoted to watching the tape, the second 5 seconds to scoring the observed interaction.

The choice of a unit of analysis depends on the scoring system used to examine each unit. A system designed to allow only one

interaction score per unit requires small units in order to limit the occurrence of conflicting score assignments. A scoring system designed to allow multiple scoring of units can use either a small unit, "the act," or larger units, such as "the speech" or a stimulus-response sequence. A time-based scoring system (i.e., number of minutes each person talked, number of minutes of simultaneous speech) requires that the entire transaction be used as the unit of analysis.

In the next section, several scoring systems used to analyze family interaction patterns are reviewed.

Family Interaction Scoring Codes

Scoring systems used by family investigators are of two general types. The first includes a list of well-defined categories of behavior from which a rater selects one or more categories that best describe the behavior exhibited in each single interaction unit being considered. These scoring systems focus on the way the family works together to complete the set family task. The product of the task, whether it be a story, consensus answers to a questionnaire, or a solution to a problem, is irrelevant in these process-oriented scoring systems. Because judgment is called for on the part of the rater, it is important to determine the reliability of the ratings. Typically, several raters are trained together until they achieve a high agreement (over 85% to 90% unit-by-unit) on their individually rated transcripts. Checks of agreement between raters are made throughout the study, to assure that the shared definition of scoring categories does not change over time. Intrarater reliability is often measured also,

using a rate-rerate pattern, with varying amounts of time intervening between the two ratings by the same rater of one family interaction session. Most scoring systems reviewed in this section are of this type.

A second type of scoring system does not break the interaction into small scorable units, but rather examines large sections of interaction and then measures time-based variables such as amount of time one person talks or duration of simultaneous speech. Ferreira and Winter (1965) used a partly time-based scoring system, as did Farina (1960). These two methods are reviewed last.

Bales (1951): Interaction Process Analysis. This system was devised in the early 1950s to explore interaction in small groups; since then it has been applied to family interaction. In Bales' early work, event recorders were used to score interactions as they occurred. The scorer observed the interaction through a one-way mirror, broke down the on-going behavior into the smallest meaningful units he could distinguish, and then coded the behavior using a list of 12 well-defined categories. These scoring categories are described next.

Category 1 includes behavior that shows solidarity. This refers to raising another's status, giving help or reward. Category 2 includes behavior that shows tension release--joking, laughing, or otherwise demonstrating satisfaction. Category 3 includes behavior that demonstrates agreement, that is, showing passive acceptance, understanding, concurrence, and compliance. Included in Category 4 is behavior that gives suggestion. This refers to giving direction or implying autonomy for the other person. Category 5 includes

behavior that gives opinions. This refers to evaluation, analysis, or the expression of feelings or wishes. Behavior that gives orientation is included in Category 6. This refers to repeats, information giving, clarification, or confirmation. The remaining six categories of interaction are the opposite of the six categories just described. Category 7 includes behavior that asks for orientation, the opposite of Category 6. Category 8 includes behavior that asks for opinion, the opposite of Category 5. Category 9, the opposite of Category 4, includes behavior that asks for suggestion. Category 10 includes behavior that shows disagreement, the opposite of Category 3. Behavior in this category shows passive rejection, formality, or the withholding of help. Category 11 includes behavior that shows tension, the opposite of Category 2. Tension-demonstrating behaviors include withdrawing from the field or asking for help. Category 12 includes behavior that shows antagonism, the opposite of Category 1. Behavior in this category tends to deflate the other person's status, or defends or asserts one's self.

The procedure Bales used to arrive at interaction frequency scores threatens reliability of the measure in two ways. First, interactions are unitized and scored as they occur, and although raters may be well trained to do this in a particular fashion, without audiotapes there is no way to check reliability of the unitization and scoring, short of having two raters working simultaneously. Even simultaneous rating will not yield intrarater reliability data, however. It will only yield interrater reliability information. Second, the distinction between unitization and scoring is blurred. They

appear to become one procedure when, in fact, they are two operations. What if two raters gave the same score to slightly different units? Is this counted as a match (same judgment) or a miss? Both of these possible sources of error were eliminated by Mishler and Waxler (1968) when they incorporated the Interaction Process Analysis into their much more comprehensive family interaction measure. They transcribed an audio tape of a family interaction, unitized the transcript, and then rated each unit based on both the typed, unitized transcript and the audio recorded discussion.

Mishler and Waxler (1968). For their intensive studies of schizophrenic families, Mishler and Waxler developed a comprehensive system to describe triadic family interaction. (The triadic family consists of a mother, father, and an index child. There may be more family members, but they are not included in the evaluation.) Using transcriptions of audiotaped interactions, the tapes themselves, and simultaneously recorded descriptions by unseen observers of the eye movements of each speaker, family interaction patterns are closely examined. Each of 21 codes is applied to every unit of the interaction. The unit studied is generally the act; however, two or more acts are used for the acknowledgment codes, and the complete sentence or idea is used for the Interaction Process Analysis Code borrowed from Bales. Each of the 21 codes is briefly described next.

Code 1, Acknowledgement Stimulus, and Code 2, Acknowledgement Response, "measure the degree to which the intent and content of a particular statement are acknowledged, or taken into account, by the following speaker" (Mishler & Waxler, 1968, p. 33). The stimulus

code contains six scoring categories, whereas the response code contains nine scoring categories. Code 3, Affect, describes both the quality of expressed feeling and whether an interpersonal relationship is implied by the statement. The Affect code contains eight response categories. Code 4, Focus, describes the focus of each comment. For example, does the comment refer to family rules, to the experimental situation, or to another person's opinion? There are nine categories in the Focus code. Codes 5 through 9 are fragment codes, each with two categories indicating either the presence or absence of a particular kind of fragmented communication. The fragment codes include the Incomplete Sentence code, the Repetition code, the Incomplete Phrase code, the Laughter code, and a code to indicate how many different kinds of fragments, from 0 to 4, are present in the unit under consideration. Code 10, Interaction Process Analysis, is Bales' system for describing group process. This code contains 12 categories, 11 of them directly from Bales and a final category that is used to indicate none of the preceding categories are appropriate for the unit under consideration. Codes 11 and 12 are interruption codes, which are used to indicate who is interrupted by whom. The interrupter is rated according to whether he/she succeeds or fails, whereas the interruptee is rated according to who interrupted or tried to interrupt. Code 13 is used to monitor statement length, and thus comprises categories: "First act in statement" (speech) or "All other acts." Code 14, Speaker, monitors who is speaking, and Code 14, To Who, monitors who is being spoken to. The final six codes were applied to all transcripts rated as a part of Mishler

and Waxler's research study, but did not yield many differences between families. Because of the lack of differences, data from these codes were not included in the final research report. Code 16, Meta Communications, refers to communications about the situation or communications about a communication. Eight categories are in this code. Codes 17 and 18 are Negation and Retraction codes, monitoring the frequency of these kinds of communications. Each contains two categories to indicate either the presence or the absence of this message. Code 19, Pauses, is used to indicate the presence or absence of silence during the interaction. Codes 20 and 21, Subject and Object codes, classify the subject of the act and the object of the act according to whether they are inside or outside the present family triad, as well as the particular individual referred to (i.e., Internal--I, you, we; External--the experimenter, other persons, impersonal subjects). Each of these two codes contains 12 categories.

Clearly, this comprehensive coding system yields data on many different aspects of family interaction. However, the cost in terms of time invested by researchers is also very great. Mishler and Waxler indicated that the average processing time for each family session is 129 hours. Therefore this family evaluation scoring system is restricted to researchers with large budgets and few time restrictions.

Riskin and Faunce (1970). Riskin and Faunce developed the Family Interaction Scales to study whole family interaction. Unlike the other family measures discussed in this section, the Family Interaction Scales were specifically designed for use with the entire family, not

just a diadic or triadic subset of the family. In this method the family is given the task to plan something together. Portions of the resulting 10-minute taped discussion are transcribed and rated, using the "speech" as the unit of analysis. Like most measures, each of the six major scales was designed so that a high or low score (defined statistically via the use of the standard deviation) indicates a dysfunctional family interaction pattern.

The six major scales are defined next, with a brief description of their categories. Scale 1, Clarity: Do family members speak clearly to one another? This scale contains four categories describing the family on this dimension: (a) speech is clear and unambiguous; (b) speech is unclear, includes incongruities or disqualifications; (c) speech includes laughter; and (d) cannot be judged. Scale 2, Topic: Do family members change topic and how do they change? This scale contains seven categories: (a) same topic, (b) total topic change, (c) appropriate topic change, (d) behavior-focused topic change, (e) inappropriate topic change, (f) jokes, and (g) one member speaks when another member was invited to speak. Scale 3, Commitment: Do family members take a direct stand on issues and feelings? This scale contains three categories: (a) commitment given, (b) commitment requested, and (c) does not apply. Scale 4, Agree-Disagree: Do family members explicitly agree or disagree? This scale has three categories: (a) explicit agreement, (b) explicit disagreement, and (c) neither agree nor disagree. Scale 5, Affective Intensity: Do family members vary the intensity with which they express feeling and ideas? This scale has three categories: (a) intensity up, (b) intensity down,

and (c) intensity normal--neither up nor down. Scale 6, Quality of Relationship: Are family members friendly or attacking? This scale contains three categories: (a) friendly tone, (b) critical or attacking, and (c) neutral. Two additional scales in this measure keep track of who speaks to whom in the family (parent to parent, parent to child, child to parent, child to child) and how many times one person interrupts another person.

Each unit is scored on each of the six scales, all interruptions are noted, and who speaks to whom is noted whenever possible. This scoring system is not quite as demanding in terms of time as that used by Mishler and Waxler (1968). Other research teams (Katz et al., 1975) have used this scoring system in their family research and found the categories to be explicit and well defined.

Singer and Wynne (1966). Like many other early family researchers, Singer and Wynne were interested in the schizophrenic family. Using a variety of tasks to generate a sample of triadic family interaction, they examined communication patterns from the perspective of deviant behavior. Other scoring systems reviewed in this chapter are structured so as to place troubled families at both extremes of each scale and so-called normal families in the center of the distribution. Singer and Wynne, however, chose their variables so as to produce a distribution with normal families at the low end of the scale and increasingly disturbed families at ever higher points on the scale. Normal and neurotic families are tested with the Singer and Wynne Family Interaction Task protocol, as are schizophrenic families, the original focus of their work.

The Singer and Wynne protocol is applied to each unit of interaction, with as many scores assigned as the interaction calls for. During one study, the researchers limited scoring to the three most important scores, but later returned to using an unlimited scoring procedure. The unit of analysis in the earlier studies was the entire discussion that took place around one stimulus (one Rorschach or TAT card). In a 1972 unpublished revision of the manual by Worby and Schachter, the unit of analysis became the act, as defined by Mishler and Waxler (1968); each unit was assigned exactly one score. This revision eliminated the interaction between unitizing and scoring variables, thereby increasing reliability of the instrument.

The revised scoring protocol contains three major categories of communication defects, each with many subcategories. The major categories are Closure Problems, Disruptive Behavior, and Peculiar Verbalizations.

Under Closure Problems are scored communications that include: (1) interruptions, (2) disqualifications of another, (3) listener called upon to supply meaning, (4) disqualifications of self, (5) gives up when interrupted, (6) speech fragments, (7) unintelligible comments, (8) supports the pathological focus of another, (9) gross indefiniteness and tentativeness, (10) contradictory information, (11) statement in question form, (12) unstable percepts, (13) tale left hanging, (14) no story or opinion, (15) subjunctive "if" responses, (16) response in negative form, and (17) no spontaneous mention of major objects. Under Disruptive Behavior are scored communications that include: (1) tangential remarks, (2) extraneous remarks,

(3) references to the intent of others, (4) concrete set responses, (5) humor inappropriate to the setting, (6) hopping around among responses, (7) negativistic temporary rejection followed by a response, (8) disruptions of the set, (9) swearing, and (10) nonverbal disruptions. Under Peculiar Verbalizations are scored communications that include: (1) odd phrasing, (2) peculiar logic, (3) reiteration or repetition, (4) idiosyncratic meaning assigned to details, (5) card or question misperceived, (6) slips of the tongue, and (7) picture or question regarded as not real.

Any communication not scored as a Closure Problem, Disruptive Behavior, or Peculiar Verbalization is scored as adequate. As with the earlier protocols, the revised version of the Family Interaction Task is designed so that the greater the score, the more dysfunctional the communication pattern.

The Singer and Wynne Family Interaction Task is much less complicated than the Mishler and Waxler system, and can be used in studies with limited resources. Because scoring can be done completely on verbatim transcripts of audio-recorded interactions, the researcher need not be present during the interaction, nor does the interaction need to be videotaped.

The final two family interaction scoring systems to be reviewed in this chapter are the Ferreira and Winter Unrevealed Difference Technique and Farina's Structured Family Interaction Task. Both of these systems use some time-based measures of certain verbal behavior, as well as the more common enumeration of instances of particular kinds of interactions. A major difference between these two coding

schemas and those already reviewed is that Ferreira and Winter eliminate and Farina minimizes the need for judging which category to apply to a specific behavior. For the most part, the schemas developed by these two researchers do not require a rater-judge to evaluate the interaction. Rather, the experimenter counts the number of times one person's individual choice becomes the family consensus choice (Ferreira & Winter--Choice Fulfillment) or counts the number of times one particular person speaks last in all discussions (Farina--Speaks Last). This reduction of judgment or decision in the measuring process can be expected to improve reliability of the procedure.

Ferreira and Winter (1965). For their research on schizophrenic, neurotic, delinquent, and normal triadic family interactions, Ferreira and Winter developed the Unrevealed Difference Technique. Using Strodtbeck's questionnaire procedure, the researchers obtained two kinds of family data: (1) individual responses to a forced-choice questionnaire and (2) an audiotaped family discussion attempting to reach consensus responses to the same questionnaire. The unit of analysis was the entire transaction. Using these two pieces of data, the researchers identified 11 different variables. Variables 1 through 4 are Spontaneous Agreement scores, which refer to the number of times a single family member's choice matched that of another family member. Both diad scores (Father-Mother, Father-Child, and Mother-Child) and triad scores (sum of the diad scores) are calculated. Variable 5 is Decision Time, the number of minutes it takes the total family to discuss consensus answers to the Family Questionnaire.

Variables 6 through 9 are Choice Fulfillment scores, which reflect the number of times an individual family member's most wanted choice is what the entire family chooses. Here, each individual member's score (mother, father, child) as well as the total family score (sum of the individual scores) is calculated. Variable 10 is the total number of Chaotic Responses. A chaotic response is scored when a family choice is made which no individual member had previously chosen. Variable 11 is Spontaneous Dictatorial Positions, a position in which a family member's individual solo choice (no other member individually agreed with him) becomes the final family choice. Variable 12 is Spontaneous Coalition, which refers to those times when two family members individually respond identically to a question, and that response later becomes the consensus family response.

Ferreira and Winter assumed that Spontaneous Agreement, Decision Time, and Choice Fulfillment are measures of family decision-making effectiveness. They demonstrated that normal families have higher spontaneous agreement and choice fulfillment and lower decision time scores than abnormal families. An alternative interpretation is that, in looking at whose individual choices become consensus family choices, Ferreira and Winter may actually be studying the distribution of power in the family. The Spontaneous Dictatorial Decisions measure may reflect the centralization of power, whereas Spontaneous Coalitions may describe the way in which power is shared in the family. Decision Time may be a measure of the amount of family conflict about the power balance in the family.

In his interaction scoring system discussed next, Farina interprets the length of discussion time as an index of family conflict.

Farina (1960). The final family interaction coding system to be reviewed here is the Structured Family Interaction Task designed by Farina. This system was originally devised to assess interaction in normal and schizophrenic couples. In this system, an unrevealed difference technique is used to generate a sample of couple interaction. Twelve child-related problem situations are presented and each parent is asked separately to discuss how he/she would deal with each situation. The couple is then brought together and asked to agree on a course of action for each situation. The joint discussion is tape recorded. Using the entire joint discussion as the unit of analysis, Farina's scoring system is applied to analyze the interaction.

Farina's system looks at two major indexes of family interaction: Dominance and Conflict. Family Dominance is measured on 7 scales, Family Conflict on 10 scales. In deriving most Dominance scale scores, the mother's score on a particular item is subtracted from the father's score. If the resulting score is negative, mother is dominant; if the score is positive, father is dominant. The only exception is the Total Time Spoken scale, which is derived by dividing the father's speaking time by the mother's speaking time. If the resulting score is greater than one, father is dominant; if less than one, mother is dominant. The seven Dominance scales are listed next. Scale 1, Speaks First, reflects the difference between the number of times each participant made the first comment in each of the 12 discussion situations. Scale 2, Speaks Last, reflects the difference between the number of

times each participant made the last comment in each of the 12 discussion situations. Scale 3, Total First and Last Comments, reflects the sum of the scores on Scales 1 and 2.

Scale 4, Passive Acceptance of Solution, reflects the difference between the number of times each participant agreed to the other's solution with no elaboration of response. Scale 5, Total Time Spoken, is the ratio of the amount of time one participant spoke to the amount of time the other participant spoke. Scale 6, Yielding-Maximum, is a measure of how much the most severe individual solution yielded to the most lenient solution. This score is derived by rating the severity of each participant's independently suggested problem solution and the severity of the conjoint solution on an ordinal scale developed by Jackson (1956) in 1955. The difference between the severity scores of the most severe individual solution and of the conjoint solution becomes the yielding-maximum. Scale 7, Yielding-Minimum, is derived similarly to the yielding-maximum score, except that the movement of the severity score from the least severe individual solution to the conjoint solution becomes the yielding-minimum score.

The scores on the 10 scales of the conflict index are taken directly from the data, with no arithmetic manipulation. These 10 conflict scales are listed next. Scale 1, Frequency of Simultaneous Speech, reflects the number of times the two participants spoke simultaneously. Scale 2, Duration of Simultaneous Speech, is the total number of seconds during which both participants spoke simultaneously. Scale 3, Interruptions by Mother, is the number of times mother interrupted father while he was speaking. Scale 4, Interruptions

by Father, is the number of times father interrupted mother while she was speaking. Scale 5, Total Interruptions, is the sum of both father's and mother's interruptions. Scale 6, Disagreements and Aggressions by Mother, is the number of times mother disagreed with or aggressed against father. Scale 7, Disagreements and Aggressions by Father, is the number of times father disagreed with or aggressed against mother. Scale 8, Total Disagreements and Aggressions, is the sum of both mother's and father's score in this category. Scale 9, Failure to Agree, is the number of times the participants failed to reach a consensus solution. The maximum possible score here is 12, because 12 problem situations are presented for resolution. Scale 10, Verbal Activity, is the total amount of time each couple took to discuss the 12 situations.

Hetherington et al. (1971) used an adaption of the Structured Family Interaction Task to study interaction in mother-father-child triads containing a delinquent teenager. They found that both the dominance scales and the conflict scales distinguished quite well between three different categories of delinquent families and the normal family group. Neither of these scales was ordered so that a higher score indicated a less-well-adjusted family and a lower score indicated a better-adjusted family. Rather, normal family diads and triads sometimes had higher, sometimes lower, scores on these variables than did delinquent families.

For the present study, the Wynne and Singer Family Interaction Task is the preferred instrument. It is less complicated than the Mishler and Waxler system to administer and score, because it does not

require the use of videotaped interviews. The resulting scores are distributed so that a greater score indicates greater family dysfunction, contributing to ease in interpretation. The system contains three major categories of dysfunctional communication, each with many subcategories. The data can easily be collapsed into three scales which describe communication problems which the treatment programs evaluated in this study are designed to alter.

Self-Concept Measures

Self-concept is a term used loosely by many people and very specifically by some psychology researchers (Combs, 1962). The literature on juvenile delinquents that refers to self-concept defines it as the teenager's level of self-satisfaction (Brehm & Back, 1968) or the teenager's self-evaluation of his/her own behavior and attitudes (Atchison, 1958). For the present study, then, the ideal measure of self-concept will primarily examine the teenager's evaluation of his/her own self-image. This definition of self-concept is very similar to that of self-esteem, in that the self-evaluative component is more important than the self-descriptive component.

The search for an instrument to measure self-concept as defined in this study requires a close look at the constructs underlying the tests under consideration. This examination of constructs is necessary because of the widely varying meanings attached to the term self-concept.

The Tennessee Self-Concept Scale is an obvious test with which to start this review, because it directly purports to measure

self-concept. From here, the review must broaden to examine personality tests in general, because no other tests profess specifically to measure self-concept. In this broader category of personality tests, four measures hold promise of measuring some dimensions of self-concept. These are: (1) The California Test of Personality, (2) The Test of Personality, (3) The Security-Insecurity Inventory, and (4) The Self-Perception Inventory. Each of these tests will be reviewed sequentially.

Tennessee Self-Concept Scale

The Tennessee Self-Concept Scale (TSCS), developed by Fitts (1965), comprises 100 self-descriptive items that subjects rate on a 1-5 point scale, from completely false (1) to completely true (5). The items are grouped into two major subdivisions--the 90-item self-esteem scale and the 10-item self-criticism scale. Items in the self-esteem scale (which yields the Total Positive Score) were initially derived from two sources: other unpublished self-concept measures and self-description of both patients and nonpatients. On the basis of these early items, the author developed a 3 x 5 classification system to describe the content of the items. The internal frame of reference had three divisions: identity, self-satisfaction, and behavior. The external frame of reference (or how the person perceives various aspects of him/herself) had five divisions: physical self, moral-ethical self, personal self, family self, and social self. The early item pool was given to seven clinical psychologists to classify according to the two-dimensional 3 x 5 scheme. The final

scale items were only those on which there was perfect agreement by the judges. The 10 items in the self-criticism scale were taken directly from the lie scale of the Minnesota Multiphasic Personality Inventory. Because of this careful construction, the TSCS has very high content validity. The test is appropriate for use with people age 12 or older, who have at least a sixth-grade reading level.

The TSCS can be scored using the Counseling Form (yielding 14 scores) or the Clinical and Research Form (yielding 30 scores). The scale was normed on a sample of 626 persons of varying sex, race, economic and social background, educational level, and age. Test-retest reliability (with amount of time between testing unstated) varies across subtest scores with a low of .60 to a high of .92, with an average of .80. The Total Positive Score, based on 90 items and measuring self-esteem, has a test-retest reliability of .92, whereas the Self-Criticism Score has a reliability of .75.

This scale has been used in many research studies and has been demonstrated to discriminate well between people belonging to various psychiatric diagnostic groups. In a 1958 study, Atchison found that delinquent teens had significantly different scores than nondelinquent teens on all variables except the Self-Criticism Score and the Distribution Score. A 1964 study by Lefebvre also showed significantly different scores for first-time juvenile offenders, chronic juvenile offenders, and a normal control group of teenagers.

Suinn's 1975 review of the TSCS highlighted the strong content validity of the measure and pointed out that there is strong research support for the validity of group scores, but that the use and

interpretation of individual scores has not been validated by research. Suinn also indicated that membership in delinquent groups alters self-concept scores. In another review of this measure, Bentler (1975) pointed out that the various subtests are not independent of one another and may serve to confuse the user or to encourage over-interpretation of the data.

The test's author did not address the question of construct validity, but several research groups have explored this issue using a factor-analytic approach. An early study by Rentz and White (1967) analyzed the 12 test scales of the TSCS using an orthogonal rotation. They discovered only two relatively independent dimensions, which they labeled self-esteem and conflict-integration. Their work is subject to criticism, however, because of the spuriously high intercorrelations between the subscales that result from the many overlapping items. (Each item feeds into several scales simultaneously.) To correct this defect, Vacchiano and Strauss (1968) factored the individual items of the TSCS and came up with 22 factors that accounted for 66% of the total variance. These researchers grouped some of the factors according to the items involved, and indicated that "the factor analysis performed would substantiate the construct validity of the TSCS" (p. 326).

To explore further the construct validity of the TSCS, Gable, LaSalle, and Cook (1973) administered the questionnaire to 125 college freshmen and factor analyzed the data both by item and by the 12-scale counseling scores. The scale score analysis resulted in two independent dimensions of self-esteem and integration-conflict and was

consistent with the earlier findings of Rentz and White. The item analysis resulted in the identification of 23 primary factors, accounting for 68% of the total variance. Because of the low correlations between factors, Gable et al. were skeptical of Vacchiano and Strauss's procedure of collapsing the factors into a smaller number of self-concept dimensions. Gable et al. suggested that the 3 x 5 scheme Fitts (1965) used to explore self-concept might better be described as a 1 x 5 classification, because their data could not support collapsing the data to achieve identity, self-satisfaction, and behavior scores. Additionally, their data (from the item analysis) only partially supported the five externally perceived dimensions of self-concept. The researchers concluded that much more work needs to be done to determine the construct validity of the TSCS.

The strength of the TSCS seems to lie in its overall measure of self-esteem (Total P Score) and in its ability to discriminate between varying diagnostic groups. Its value in group research with acting-out adolescents has been demonstrated, as has the high reliability of its scores and the validity of its content.

California Test of Personality

This test, revised in 1953 by Thorpe, Clarke, and Tiegs, comprises 12 subtests grouped into two parts: self-adjustment and social adjustment. The subtests of the self-adjustment scale are self-reliance, sense of personal worth, sense of personal freedom, feeling of belonging, withdrawal tendencies, and nervous symptoms. The subtests of the social adjustment scale are social standards,

social skills, anti-social tendencies, family relations, school relations, and community relations. The questions require a yes or no answer, and great care is taken to disguise the real focus of each question. There are two forms of this test, one for grades 4 through 9, the other for grades 9 through 14 (presumably through the first 2 years of college).

In a 1970 review of the California Test of Personality (CTP), Cattell was impressed with the efficiency of scoring, the percentile norms (with probable errors and standard deviations), and the consistency coefficients. However, he expressed skepticism about the validity of the test and criticized the oversimplification demonstrated in the manual. The test was constructed to be useful to both school teachers and clinicians as they diagnose and treat children with problems. For the teacher, Cattell felt more data are presented than can be understood and used wisely. For the clinician, he felt the data are oversimplified, and described with constructs not useful to the professional therapist. Symonds (1970) supported this criticism, adding that the subtest reliabilities of .60 to .87 are not high enough to allow individual interpretation or treatment planning. Symonds felt group interpretation might be appropriate, but even then should be restricted to the two major divisions of the test and not extended to the 12 subtests.

Vernon (1970) pointed out that the language used in the form for older children and young adults is inappropriately childish and may affect subject response.

Gibbs (1965) used an adapted form of the CTP in his study relating college students' academic failure to social maladjustment. With his sample of 128 students, the test-retest reliability coefficients of the subtests over a 3-month period varied from .65 to .85, with a total score reliability of .85.

Kemp (1965) also used the CTP in his research into self and other perceptions of parents and their adolescent children. He failed to report any reliability data, but did find that the CTP profiles of low-problem teenagers (teenagers with few problems) and their parents were different from those of medium-problem teenagers and their parents as well as from those of high-problem teenagers and their parents.

In summary, the CTP appears to be outdated verbally, supported by little psychometric research, and constructed primarily for use by classroom teachers as a preliminary screening device or by researchers examining group characteristics of various populations. The self-evaluative element, which is so critical in delinquency research, is not a major construct of the test.

Security-Insecurity Inventory

This test was designed by Maslow, Birsh, Honigman, McGrath, Plason, and Stein (1952) to measure feelings of security, which Maslow (1968) felt to be one of the major determinants of mental health. Maslow felt that security-insecurity was a very different construct from self-esteem, and in fact postulated personal characteristics of people with various patterns of high or low self-esteem

and security scores. This test was clearly not a choice in the current search for a reliable and valid estimate of adolescent self-concept.

Test of Personality Adjustment

Rogers (1931) developed the Test of Personality Adjustment (TPA) in the 1930s to evaluate the extent of unhappiness and maladjustment in children. The test can be used with children ranging from 9 to 13 years of age, and yields five scores: personal inferiority, social maladjustment, family maladjustment, the extent of daydreaming, and a total score measuring the seriousness of maladjustment.

In a 1970 review of the TPA, Gough severely criticized the outdatedness of both the test and the test manual. He found the validity data weak and the norms based on a small, narrow sample. He suggested a thorough revision before the test continues to be marketed. Adler (1970) supported this critical view of the psychometric basis for the TPA. He found the reliability scores too low to justify use of the test, and recommended that it only be used in pilot studies.

The critical reviews of the TPA, combined with its limited age range, make it an unlikely choice for a study of acting-out adolescents.

Self-Perception Inventory

The Self-Perception Inventory (SPI) is a relatively new test of personality, published by Martin in 1968. The test yields scores on 12 subtests: (1) rigidity-dogmatism, (2) consistency, (3) uncommon response, (4) authoritarianism, (5) self-actualization, (6) anxiety, (7) depression, (8) paranoia, (9) supervision, (10) time, (11) general

adjustment, and (12) general maladjustment. The latest revision, suitable for persons age 12 and over, consists of 200 items. The early form of this test included items developed initially from diagnostic rationale, clinical case histories, and empirical analysis. The items were subjected to reliability checks and an item analysis, which led to the selection of items for the revised scale. Reliability data for the current scale were not reported in the test summary. However, Martin reported that a factor analysis and orthogonal varimax demonstrated that the desirable personality factors measured by the test were significantly and inversely related to the undesirable factors.

Braun and Tinley (n.d.) explored the ability to fake responses on the SPI and concluded that the instrument is grossly transparent. They gave the SPI to 37 college students. Twenty students were instructed to fake negative and 17 to fake positive. "All but one of the [12] scales (Rigidity-Dogmatism) were significantly affected in the appropriate directions by the opposed faking instructions ($p = .002$ " (p. 118).

Several articles by Martin (1968) and the reported Braun and Tinley study constitute the published work using the SPI. Because of this paucity of data supporting the usefulness of the SPI as a measure of either general personality characteristics or of self-esteem, the test was not considered an appropriate measure of adolescent self-concept.

Based on the data presented regarding all five measures reviewed here, the Tennessee Self-Concept Scale is clearly the best choice for assessing self-concept in a sample of acting-out adolescents.

Teen Drug and Delinquent Behavior Questionnaires

When attempting to survey behavior that is not observable in an experimental setting, the researcher must often rely on self-report measures. As with any measurement instrument, the question of how accurately the instrument measures behavior must be asked. Since drug-use varies across communities and across time, standardized questionnaires with known validity may quickly become obsolete. In fact, there is no appropriate standardized form for collecting information on the use of nonprescription drugs in a teenage population. Therefore each researcher must create a questionnaire appropriate to the population to be surveyed. As with any new measure, especially a measure of self-reported behavior in the sensitive area of nonprescription drug use and delinquent behavior, the issue of validity of the data is critical. Can the researcher trust self-report data in these sensitive areas?

In a 1958 article, Dean and Whyte outlined four sources of distortion in self-report methods and suggested four ways to detect the existence of distortion. The four sources of distortion were as follows: (1) The respondent did not observe the details asked for or he/she cannot recollect what he/she observed and so instead reports what he/she thinks happened. (2) The respondent reports as accurately as he/she can, but has selectively perceived the situation because of

his/her mental set. (3) The respondent unconsciously modifies the report because of emotional needs to alter the situation to fit his/her perspective. (4) The respondent consciously modifies the report to convey a distorted impression of what happened.

To check self-report data for distortion, Dean and Whyte suggested four steps. First, check the plausibility of the data. Does it seem reasonable that what is reported really is so? This is admittedly a gross check, since implausible occurrences can and occasionally do happen, but the researcher should remain slightly skeptical. Second, check for past incidences of lack of validity on the part of the respondent. Third, knowing the respondent's "mental set" as he/she recorded the data can help in the interpretation of the data. Fourth, the researcher can compare the respondent's account with the accounts of other observers. This cross-check procedure allows the researcher to estimate the reliability of the data.

Smart and Jackson (1969) investigated the validity of adolescents' self-reports of marijuana use by comparing the collected self-reports to teenage classroom representatives' peer-use estimates. They found that classroom representatives' estimates of peer use of marijuana correlated very highly with the self-reports of marijuana use. More recently, Haberman, Josephson, Zanes, and Ellinson (1974) studied the overestimation of illegal drug use by including fictitious drug categories in their questionnaire. They found an overreporting rate of less than 1%. A similar overreporting study by Fejer and Smart (1972) yielded an overreport rate of 0.7%.

All drug questionnaire research reported to this point used anonymous questionnaires. If a questionnaire is identifiable (even though coded to protect the identity of the subject), will the distortion rate be greater than if the questionnaire were anonymous? King (1972) explored this question by comparing return rates and drug-use figures reported by five different investigators, four of whom used anonymous questionnaires and one of whom used a coded questionnaire. One of these researchers reported data from two different cities separately, so a total of six populations was studied. All research used college students or recent college graduates; data were collected during the 12-month period from February 1967 to January 1968. The studies varied in terms of methodology and analysis, as well as subject pool, but the data on both return rates and percentage of respondents admitting to drug use were remarkably similar. The return rates for studies using anonymous questionnaires were 92%, 66%, 80%, 70%, and 24%; the return rate for the study using coded questionnaires was 79%. The percentage of students who reported using marijuana on the anonymous questionnaires was 20%, 20%, 18%, 29%, and 17%; 20% of the students using coded questionnaires reported that they had used marijuana. Only four studies asked about LSD use; 9%, 7%, and 2% of the students responded on anonymous questionnaires that they had used LSD and 4% of the students reported on coded questionnaires that they had used LSD.

In addition to comparing his own data using coded questionnaires to those of other researchers who used anonymous questionnaires, King repeated his own study with a different sample of the same population,

using both anonymous and coded questionnaires. Again, the two samples' return rates and use percentages were very similar. Coded questionnaires had a 63% return rate, compared to a 67% return rate for anonymous questionnaires. Marijuana use for subjects with coded questionnaires was 26%, compared to 29% for those with anonymous questionnaires. LSD use for people with coded questionnaires was 3%, compared to 4% for those with anonymous questionnaires. King analyzed these data using a χ^2 statistic and found no significant differences on any variable. However, he did not demonstrate that the results from the two questionnaires were equivalent, because χ^2 cannot be used to prove equality.

In a 1970 study investigating the underreporting of prescription drug use by adults, Parry, Balter, and Cisin compared self-report use of brand-name prescription drugs to self-report use of particular classes of drugs (e.g., uppers or stimulants, downers or depressants, tranquilizers) and found that subjects underreported their use of mood-altering drugs by 17%.

The available data indicate that coded self-report measures can be relied upon to estimate drug use fairly accurately. What can the researcher do to increase the reliability of these self-report data? In relation to feelings about events and activities, Dean and Whyte (1958) suggested that, as time passes, people tend to modify their recollections to bring them more in line with their current point of view, so perhaps asking about recent events will yield a more reliable estimate than asking about more distant events. Rutter and Brown (1966) recommended that to get accurate accounts of behavioral events

the researcher should focus on "a defined, recent and usually short period of time. With most measures we question in detail about the week preceding the interview and then go on to find out about rarer events in the last 3 months. . ." (p. 44).

In the end, the question to be answered by means of a drug and delinquent behavior questionnaire is: What are the adolescents actually doing? Knowing this, Dean and Whyte's (1958) final comment regarding behavior surveys is especially relevant:

The researcher will not ask himself, "How do I know if the informant is telling the truth?" Instead, the researcher will ask, "What do the informant's statements reveal about his feelings and perceptions and what inferences can be made from them about the actual environment or events he has experienced? (p. 38).

CHAPTER 4

STUDY DESIGN

The need for a family-oriented treatment program that addresses the problems of families with acting-out adolescents was presented in Chapter 1. The literature relating to treatment of dysfunctional adolescent families was reviewed in Chapter 2, and measurement methods relating to family interaction and self-report instruments were reviewed in Chapter 3.

This chapter outlines a family-oriented treatment program for families with an acting-out adolescent. This program is compared to a treatment program involving adolescents only and also to a no-treatment control group. The details of the research strategy used to evaluate these programs are also presented. Included are descriptions of the population and recruitment procedures, the sample and assignment procedures, the measures used to evaluate change, and reliability estimates of these measures on this sample. Also included in the chapter are a summary of the research study design, a statement of the hypotheses, and a description of the analyses employed to evaluate the data.

Population Description and Recruitment Procedures

This program was aimed at multi-problem adolescent families whom traditional social agencies have failed to reach.

Each family had an adolescent with a problem--as labeled by the family or the referring agency. The presenting problems that entitled a family to treatment included teenage drug abuse, poor school attendance and achievement, disregard for parental rules and sanctions, and participating in nonstatus crimes such as theft, breaking and entering, and drug dealing. The families often had a history of parental alcohol abuse, unemployment, repeated marriages, and unstable living situations.

Families for this project were referred from four sources: the Ingham County Probate Court; local social service agencies (such as Community Mental Health Centers, Department of Social Services, Family and Child Services, and Catholic Social Services); schools; and self-referrals generated by newspaper and radio advertisements, posters, and brochures describing the project. The families were actively sought. Outreach work included frequent phone calls, home visits, close work with the probate court worker if one was involved, and general promotion of the project.

Sample Description and Group Assignment Procedure

The sample comprised 30 white families. The entire family was viewed as the unit of treatment and analysis; however, in many cases not all family members were willing to participate. Also, families varied in configuration; the sample included 13 two-parent families, 15 single-parent families, and 2 foster care families. Five families were receiving welfare with no parent employed, 11 families had adults employed as unskilled workers, 8 families had adults employed as

skilled or white-collar workers, and 6 families had adults employed as professionals (teachers, nurses, public administrators, etc.). The ages of the identified adolescents ranged from 11 to 17, with a mean of 14.3 and a standard deviation of 1.28 years. Seventeen of the identified adolescents were female; 13 were male. The Ingham County Probate Court referred 12 families, schools referred 8 families, private or public social service agencies referred 2 families, and 8 families were self-referred.

Acknowledged family problems fell into nine categories. Most families were concerned with their child's school truancy, and 10 families were concerned with their child's suspected drug use. Five families had problems with a runaway child, five felt their child was incorrigible, and five indicated their child had learning problems at school and two were concerned with their child's sexual acting out.

Families were placed in groups at the moment of referral, using a randomized block procedure. Referral source was the blocking variable. Each referred family was offered a particular program and was free to accept or reject the offer. No families were compelled to participate in the program offered, although, as indicated earlier, the program representatives did try to "sell" the program to the referred families. One hundred twenty-three families were referred for treatment; 30 families completed their assigned treatment program, representing a completion rate of 24.4% of the families referred for treatment. The three treatment groups differed in terms of the number of families offered each program, to ensure that 10 families completed each program. Such differences occurred because when a family refused

the program offered, its name was placed on a not-accept list and removed from the assignment list, thereby allowing its assignment to be given to another family. Likewise, when a family dropped out of treatment, its name was placed on a drop-out list and removed from the assignment list, thereby allowing its assignment to be given to another family.

The family program was offered to 55 families; 10 families completed the program. The adolescent program was offered to 36 families and the no-treatment control experience was offered to 32 families. The proportion of families offered the family program which began treatment was .42. The proportion which began the coping group program was .61 and the proportion which began the control group experience was .56. Comparing the proportion of families who accepted each program to the number of families offered each program using Chi Square failed to demonstrate any significant difference, $\chi^2 = 3.7288$, n.s. $p = .05$.

To further explore any possible differences between the experimental groups due to families dropping out of the programs before completion, the proportion of families who completed each program was compared to the proportion of families who began each program, again using Chi Square. The proportion of families beginning treatment in the family program who completed treatment was .43. The proportion completing the coping group program was .45, and the proportion completing the control group experience was .56. No difference could be demonstrated between the groups on this variable, $\chi^2 = .6548$, n.s. $p = .05$.

Data comparing the families offered each treatment program, beginning each treatment program, and dropping out of each treatment program are summarized in Table 4.1.

Table 4.1: Comparison of Families Offered Each Treatment Program, Beginning Each Treatment Program, and Dropping Out of Each Treatment Program

	Family Program	Adolescent Program	Control	χ^2
No. of families offered program	55	36	32	...
No. of families beginning counseling	23	22	18	...
No. of families dropping out of program	13	12	8	...
Proportion of families offered the program which began	.42	.61	.56	3.7288 n.s.
Proportion of families which finished the program of those who began	.43	.45	.56	.6548 n.s.

Even though no difference could be found between the three treatment programs on the attraction rates or holding rates, the groups were not proved to be equivalent. This is because the Chi Square analysis cannot be used to prove equivalence of groups. Therefore, the dependent variables assessing change as a result of treatment may actually have assessed change as a result of the interaction between

treatment and selection. This issue is explored further in Chapter 5, where research findings are presented.

To further explore possible differences between the three programs, Chi Square analyses were done comparing the groups on the variables age and sex of the identified adolescent, family job description, family member participation in the testing situation, and self-acknowledged family problems.

Measures

The results of each treatment program were assessed on many dimensions. It is important to measure family interaction as well as adolescent self-concept and adolescent drug use and delinquent behavior. To assess change in family interaction, the Family Interaction Task by Singer and Wynne, as revised by Worby and Schachter, was used, as was a Family Problem Behavior Scale developed especially for this study. The Tennessee Self-Concept Scale was used to measure adolescent self-concept, and a behavior questionnaire was used to measure adolescent drug use and delinquent behavior.

All measures were administered to each family unit separately. Also, the Tennessee Self-Concept Scale and the Behavior Questionnaire were administered separately to the identified adolescent. Each of these measures is described next, along with reliability estimates relating to the experimental sample.

Family Interaction Task

The Family Interaction Task, developed by Singer and Wynne and revised by Worby and Schachter, was summarized in detail in Chapter 3.

To use this measure, a sample of family interaction must be obtained. For this study, each family member was given Thematic Aperception Test (T.A.T.) Card 2, and the family was asked to make up a story together to go along with the picture on the card. They were told they had 10 minutes in which to complete the task, and that their discussion would be audio recorded. The experimenter then left the room and returned 10 minutes later. In preparation for analysis, the data gathered from this measure were transcribed, unitized, and rated. These steps are discussed on the following pages.

Transcribing. The transcribing was done carefully, following Worby's models of Wynne and Singer's original work with the Family Interaction Task. Each 10-minute audio-taped interaction was transcribed verbatim; each participant's words were typed in his/her own column on the transcript. The variable "time" ran down the paper; thus if Person 1 talked, his/her words were typed in his/her column, and the other columns parallel to that speech were empty. If the next speech was by Person 3, it was typed in the appropriate column (not overlapping horizontally with the previous speech), and all other columns in the parallel space remained empty. See Figure 4.1.

Interruptions were noted by coding the beginning of the interrupting speech. In Figure 4.1, for instance, the code I-P₄ indicated that the one who was interrupted was Person 4. Also, the words that overlapped in the two speeches were underlined with an identical pattern. Because interrupting was frequent in some families, different patterns of underlining were used to indicate which words in a pair

of speeches were said in an overlapping manner. Some of the patterns were: (1) — — — — — , (2) — · — · — · — · , (3) , (4) -...-...-... .

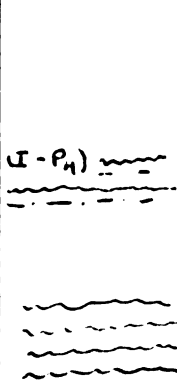
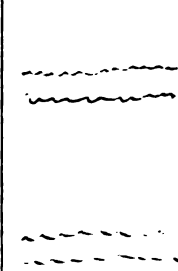
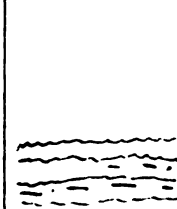
Person 1	Person 2	Person 3	Person 4	Notes
				(laughter)

Figure 4.1. Example of transcription sheet for Family Interaction Task.

The last column to the far right of the transcript was reserved for comments by the transcriber. He/she used that column to indicate circumstances such as inaudible words, laughter that could not be ascribed to particular individuals, everyone talking at once, and so on.

Unitizing. The transcribed speeches were unitized next, using Mishler and Waxler's conventions. This enabled the speeches to be broken into units small enough to be evaluated (rated). Before using these conventions, a question arose concerning the clarity of Mishler and Waxler's definition of a unit of speech. Accordingly, the

conventions were given to three local high school English teachers, who independently evaluated their clarity. High school English teachers were chosen because the unitizing rules are based strictly on grammatical forms, and it was felt that these teachers were the best local grammarians. They were asked: "Using these rules, would it be clear to you at least 85% of the time how to break a speech into analyzable units?" Each expert responded affirmatively.

One of the experts proceeded to unitize the entire series of 60 transcripts. As a further check on the reliability of the unitizing rules, one-tenth of the transcripts (six) were chosen at random and unitized a second time by the same unitizer. Another six transcripts, chosen at random, were unitized by the second of the three experts. Two reliability checks--test/retest and interunitizer--were then made on the unitizing procedure. These checks were done using the perfect match system described next.

The two unitized transcripts to be checked were placed side by side, and each unit compared. A tally sheet was prepared with two columns, one labeled "perfect match" and the other labeled "miss." Hash marks were placed in the appropriate column, as the units either matched perfectly or did not. The summary statistic used to describe the results was the number of perfectly matched units divided by the total of perfectly matched units plus not-matched units.

$$\frac{\# \text{ perfect matches}}{T \# \text{ perfect matches} + \text{not-matched units}} = \% \text{ Perfect Match}$$

The average Percent Perfect Match for the test/retest reliability was 95.4%, with a range from 88.9% to 97.7%. The average Perfect Match

for the interunitizer reliability was 92.3%, with a range from 90.4% to 96.4%.

Rating. The final step necessary to prepare the Family Interaction Task for analysis was the rating of the units. This was done using Worby and Schachter's revision of the Wynne and Singer manual which outlines four major categories of communication, each with many subcategories. For the purpose of this study, only the four major categories were noted and analyzed because many items collected in a scale provide a more reliable measure than many single items left separate. Again, the question of reliability arose. How clear was the definition of each category? Would different people agree on the assignment of a unit of speech to a descriptive category? To answer these questions, three senior-level students in the social sciences at Michigan State University were chosen and trained as raters. They met many times to discuss the communication categories and to practice rating several transcripts of nonstudy participants.

To check reliability of the rating categories, the same nonparticipant transcript was given to all three raters to rate independently. The transcripts were compared, unit by unit. If a given unit was rated identically by the three raters, a score of 100 was assigned. If two of the three raters matched, a score of 67 was assigned. If none of the raters matched, a score of 0 was assigned. The total of the scores for the transcript was then divided by the number of units, and a reliability statistic was derived.

$$\frac{\text{Total score}}{\# \text{ Units}} = \% \text{ Perfect Match}$$

The first transcript so evaluated achieved a reliability estimate of 78.9%; the second achieved a reliability estimate of 92.5%. At this point, rating of the study transcripts began.

One study transcript was assigned to each rater. The fourth transcript was assigned to all three raters. This fourth common transcript was checked for rating reliability using the procedure outlined above. Another set of four transcripts was assigned similarly, with a reliability check done on the common transcript. The entire set of 60 transcripts was rated in this fashion, with a continuous check on reliability. The intention was to stop the rating and retrain the raters if the reliability fell below 80%. This did not occur.

Problem Behavior Scale

Description. The Problem Behavior Scale was developed to allow family members to set one change goal for the treatment program they were entering and to measure at the conclusion of treatment their movement toward that goal. Family members were required to state their consensus goal in behavioral, countable terms. The goal could be an increase in the occurrence of a desirable behavior or a decrease in the occurrence of an undesirable behavior. A requirement for this consensus family goal was that all participating family members agreed on the desirability of the goal. After stating the goal, the family was asked to indicate the number of times this behavior had occurred

in the last 7 days. This number was then compared to the number given at the conclusion of treatment (with a "+" to indicate change in the desired direction and a "-" to indicate change in the opposite direction than that desired) and was the first estimate of family change. This difference was called the Behavior Change Score. Following the establishment of a baseline for the occurrence of the target behavior, each family member individually answered four questions, each asking essentially the same thing: "Rate on a 5-point scale the degree to which you feel the present rate of occurrence of this behavior is a problem in your family." The examiner gave these directions verbally. (See Appendix A for a copy of the form used to administer this scale.) Three scores were derived from these ratings: (1) the Average Parent score was arrived at by averaging parental responses on all four questions, (2) the Identified Adolescent score was arrived at by averaging the adolescent's score on the four questions, and (3) the Average Family score was arrived at by averaging the responses of all family members on all questions.

Development, reliability, and validity. The scale was developed using a three-step approach. First, 10 questions were written, each attempting to gauge the level of family dissatisfaction regarding the stated problem area. Second, the questions were written on 3 x 5 cards and given to 15 people selected randomly from the East Lansing area. Each person was asked to rank the questions in terms of how well they measured family dissatisfaction. This was done to measure content validity. A rank of "1" was given 10 points, "2" was given 9 points, and so on. The four questions with the most points were

selected for inclusion in the scale. Third, internal consistency was explored by reliability coefficients for both pretest and posttest data using the Hoyt (1941) method on five variables: (1) mothers' responses to each of the four questions, (2) fathers' responses to each of the four questions, (3) the identified adolescents' responses to each of the four questions, (4) the average of all family members' responses to each of the four questions, and (5) the average of all children's responses to each of the four questions.

The alpha correlations ran from a low of .75916 to a high of .98424. These correlations are presented in full in Table 4.2.

Table 4.2: Internal Consistency Reliability Coefficients for the Problem Behavior Rating

Scale Name	Alpha	N
Pretest Mother	.75916	28
Pretest Father	.77319	13
Pretest Adolescent	.84063	30
Pretest Average Family	.84195	30
Pretest Average Children	.98424	30
Posttest Mother	.90650	30
Posttest Father	.94841	10
Posttest Adolescent	.87743	30
Posttest Average Family	.92596	30
Posttest Average Children	.97649	30

Tennessee Self-Concept Scale

This test is described at length in Chapter 3. In the present study, the scale was administered privately to the identified adolescent in each family. He/she was asked not to write his/her name on the answer form and told that the form would be identified by a code number known only to the experimenter.

The Total Positive Score and the Self-Criticism Score were the only scores used from this scale. Reliability correlations were figured on both pretest and posttest data. The Total Positive Score on the pretest yielded a reliability coefficient of $r = .85265$ using the Guttman Split Half method. Using the Hoyt method on the same data yielded $\alpha = .93311$. The Total Positive Score on the posttest had a reliability coefficient of $r = .91430$ using the Guttman Split Half method. Using the Hoyt method on the same data yielded $\alpha = .91951$. The Self-Criticism Score on the pretest had an $\alpha = .61240$, using the Hoyt method. On the posttest, the Self-Criticism Score had an $\alpha = .63632$.

Drug and Delinquent Behavior Questionnaire

Description. This two-part questionnaire was developed especially for use in the present study. The first part surveys drug-use habits, beliefs, and sources of supply; the second part surveys delinquent behavior and the adolescent's estimate of various kinds of family disagreements. Three scales yield summary scores for (1) drug use, (2) status delinquent behavior, and (3) nonstatus delinquent behavior.

Each adolescent completed this form privately, and was asked not to write his/her name on the questionnaire. The adolescent was told that the form would be identified by a code number known only to the experimenter. A copy of this questionnaire and scale definitions are in Appendix B.

Development. The 138 questionnaire items were generated from the literature and from discussions with local probate court workers. A preliminary draft of the instrument was submitted to an expert on nonprescription drug use for a critique on the accuracy of drug categories, dosages and effect, the likelihood of adolescents understanding what drugs were being referred to, and the most-often-cited reasons for using drugs. The questionnaire was then revised to reflect the suggestions offered.

The revised instrument was submitted to a secondary school counselor for advice on the reading level of the questions and their applicability to the local adolescent population. With a few revisions, the questionnaire was completed. This process of review and revision by experts in the field established the content validity of this questionnaire.

The three scale scores derived from the posttest questionnaire were examined via a 3 x 3 Multivariate Analysis of Covariance (MANCOVA). Pretest scores on the same variables are used as covariates. This analysis was performed separately from the analysis of the other measures used in this study.

Description of the Agency Offering Treatment

All treatment programs offered and evaluated as a part of this research project were carried out by the Adolescent Division of the Drug Education Center (DEC). The DEC is supported by public and private funds and serves the community in five ways: (1) It provides a 24-hour crisis phone line for immediate help or referral for any kind of problem. (2) It provides free medical clinics for adults, adolescents, and young children. (3) It provides counseling services to families with acting-out adolescents. (4) It provides drug education and/or information for local and state schools, community organizations, or interested individuals. (5) It provides empathy training programs for various state groups.

The Adolescent Division of DEC received a grant from the Attorney General of Michigan Trust Fund for staff training and salaries. The grant allowed programs to be offered gratis to Ingham County residents. All staff members underwent extensive training in family structure, dynamics, and techniques of change. This training was led by a psychologist who had been the supervisor of the Adolescent Unit at the Ingham County Community Mental Health Center. The staff members were supervised in all their work both by that psychologist and by the director of the Livingston County Community Mental Health Center.

Description of Treatment Programs

Treatment I: The Family Program

The Family Program evolved through the two years of its development into a program that responds flexibly to the special needs of

the multiproblem families with whom the DEC so often deals. The program comprised 10 2-hour sessions, and had three components: the parent group, the adolescent group, and the family counseling sessions. During the first 6 weeks of the program, each family in this treatment group went to group education classes. All parents met in one room, while their adolescents met in another room. At the conclusion of these classes, each family unit met alone for 4 weeks to work directly on solving their problems. These three program components--parent group, adolescent group, and family counseling sessions--are described next in detail.

Parent group. The parent group was an open group, cycling repeatedly through six different sessions. It was led by a team of two facilitators. Parents could begin with any session, come six times, and stop coming. Parents could also repeat sessions that covered material they felt they needed more work on, or participate in a session they had missed during the first 6-week cycle. Each session was 2 hours long. This format proved quite useful for families that had difficulty keeping commitments. A general outline of each of the six sessions follows. Each session began with an introduction of new members and a brief discussion of the goals of the entire series, as well as the goals of the particular session.

SESSION A: Separation--a key dynamic in families with adolescents

Goals: For group members to discuss adolescence as a stage of life, to help group members vent feelings about their own situations, to help group members re-examine their own adolescent years and try to relate those years to their concerns about their children's adolescence, and their relationship with their adolescent.

Strategies: Mini lecture on separation between parents and adolescents, normal patterns, concerns, ramifications, behaviors.

Group members form diads (each not knowing the other), and share thoughts and feelings about how it is to be parents of adolescents and/or how it was to go through adolescence themselves, comparing and contrasting this with how they see their children going through adolescence.

Wrap-up discussion: Asks how was the session tonight? How do you see the discussion here as fitting or not fitting in your family? How do you feel about the session?

SESSION B: Feelings

Goals: To help parents get in touch with and label their own feelings and to help them be aware of their children's feelings, and to learn to make empathic responses to those feelings.

Strategies: Mini lecture on feelings: what they mean, values surrounding them, how they affect behavior, how responding empathically can be helpful.

Feeling word label list generated by group members.

Diads: Both people label and share three feelings they have had recently and discuss the situations in which they have had those feelings.

Reflection round: Each member shares a situation about which he or she had some feelings. The group member sitting next to the person sharing the situation responds to him or her empathically, by telling him or her how it sounds like he or she felt in that situation and possibly why he or she felt that way.

Wrap-up discussion: (See Session A description.)

SESSION C: Values

Goals: To help group members become more aware of their own values, and of their children's values. To explore how values can play a part in conflict. To help parents respond empathically to their children's values and to state their own values clearly. To help parents be aware that values vary and change.

Strategies: Mini lecture on values: what they are, where they come from, how they influence decisions. Discussion of material presented in lecture.

Family Dilemma game: a situation involving six hypothetical people from two fictional families is described and group members are asked to rank the people from "best" to "worst" and to share the values which they, the group members, hold which influenced how they ranked people in the story.

A group member is asked to fill in a chart linking a problematic situation s/he has experienced and the feelings and values s/he had in that situation. Group members then form empathic responses containing the feelings and values from the chart.

Wrap-up discussion: (See Session A for description.)

SESSION D: Conflict

Goals: To give group members information on conflict and enable group members to share their own strategies for dealing with conflict. To enable group members to talk in group about problem situations.

Strategies: Mini lecture on conflict; its inevitability, the fact that methods of dealing with conflict vary.

Role play: Several group members role-play a conflict situation of the family of one group member. Group members then give the "conflict owner" feedback on how they perceive the conflict. This is compared and contrasted with how the "conflict owner" perceived it, especially focusing on the part that each individual plays in participating in the conflict.

Wrap-up discussion: (See Session A for description.)

SESSION E: Problem Solving

Goals: To give a group member a six-step outline for solving problems, to help group members simplify large problem situations into smaller parts, to enable parents to discuss and clarify what things get in the way of solving their problems.

Strategies: Mini lecture on Problem Solving and presentation of the model:

- Define the problem
- Own the problem
- List alternatives
- Choose among alternatives
- Find a way to implement alternatives
- Evaluate the situation

Discuss the model and concerns about it, using examples and role playing.

Wrap-up discussion: (See Session A for description.)

SESSION F: Family Roles

Goals: To help group members be more aware of roles played by the members of their families (ex. nurturer, punisher, "good" kid, "problem" kid, family student, family athlete) and how these roles influence behaviors and perceptions of each other.

Strategies: Mini lecture on roles, including examples.

Discussion: Roles of individual group members in this group. "So and so is the one who. . ." (is the most quiet, asks most questions, shares the most information, etc.). Process this as to how members' roles in this group relate to roles in their families and how their roles in their families of origin relate to their roles in present family living situation.

Wrap-up discussion: (See Session A for description.)

Adolescent group. The group of adolescents convened at the same time as the parent group and was also led by two facilitators. There were less structured goals and tasks for each session, but the group followed a plan aimed at improving four areas of the participant's experience of self and others. These areas were: (1) self-concept; (2) ability to understand and cope with emotional stress; (3) ability to accept, assess, and satisfy own needs in a non-self-destructive fashion; and (4) skills in solving inter- and intrapersonal problems.

These goals were accomplished in the unstructured group setting by members discussing current concerns. Group facilitators focused attention on the feelings, values, and behavior of the teenagers in response to the situation. At appropriate times, the facilitators introduced a discussion of values and their impact on behavior. At other times, the role of feelings and responsibility for feelings was discussed. In a free-flowing manner, it was expected that the adolescent group would cover the same issues as the parent group.

Family counseling sessions. These four sessions, following the parent and adolescent group experience, offered each family an opportunity to apply to their particular family difficulties the insight and communication skills they had just gained in the small peer groups.

Each family session was facilitated by two staff members, one a facilitator from the parent group and one from the adolescent group. The family was encouraged to talk and work together to solve their problems. The focus was clearly on the family problems, as opposed to a problem with the adolescent in the family. Such a family orientation made this approach unique among programs that work with families of acting-out adolescents. Families participating in the program were able to get crisis help from the DEC staff between sessions. They could also ask the DEC worker to appear with them in probate court, school conferences, or any other situations they defined as stressful and in which they felt the need for such support.

Treatment II: The Adolescent Program

The Adolescent Program was identical to the adolescent group in the Family Program, except that the experience lasted for 10 full weeks. The availability of the DEC staff for crisis work as well as support in stressful situations was built into this program also. Other than program length, a major difference between the programs was that all adolescents participating in the Adolescent Program were picked up and returned home for each session. Parental involvement was not required, although a parent could request the help of DEC workers. There were no family counseling sessions.

Treatment III: The Control Group

The control group received no treatment of any kind from the DEC for a 10-week period, and was then given the posttest. After

the posttest, these families were offered services, but they were not eligible to be in a treatment group as a study subject.

Completion Requirements for Treatment Programs

Many families with acting-out adolescents find it difficult to regularly attend programs and drop out before completing a series of 10 sessions. Therefore, for the purposes of this evaluation a family was considered to have successfully completed the family program if it attended four of the six group sessions and two of the family sessions. Likewise, an adolescent in the Adolescent Program who came to six sessions before dropping out was considered to have completed the program. Also, although groups are designed to run for 10 consecutive weeks, a family may take more than 10 weeks to complete the series of 10 sessions. For the purposes of this study, 5 extra weeks were allowed to give the family adequate time to complete the program. This concession was made because many of these families had difficulty keeping scheduled appointments. All types of difficulties interfere with regular attendance. However, given a flexible time frame, families often manage to complete the program. The extra weeks allowed were an attempt to maximize flexibility while retaining a definable standard of time.

Intake Procedures

Once a family was referred to one of the programs for treatment, intake procedures began. Descriptive data on the family were collected by phone from one parent; these data included names, ages, and

occupations or school levels of all family members; the reason they had been referred to the program; and the referring agency. The family was randomly assigned to a group, and a preliminary family interview was set up to take place in their home. As many family members as possible were encouraged to participate in the interview.

Project workers would go to certain limits to encourage families to participate in the program. Families who twice failed to appear for a scheduled interview, without calling to cancel, were dropped from the program. Families who cancelled three consecutive appointments were also dropped. Families were notified of this policy after their first missed appointment. Such indifferent families were felt to be poor risks because they almost surely would drop out of treatment before its conclusion.

During the intake interview, families were told the program they were about to enter was offered by DEC under the auspices of the Attorney General of Michigan Trust Fund. They were also informed that the program would be thoroughly evaluated, and were asked to sign a "Participation Contract" and a "Consent to Record Interviews" form.

At that point, the family was given the pretest, which consisted of four measures, each previously described: (1) Family Interaction Task, (2) Family Problem Behavior Scale, (3) Tennessee Self-Concept Scale, and (4) Drug and Delinquent Behavior Questionnaire.

Posttest

Following the completion of treatment, each family was scheduled for a final interview to take place in the home. During the interview, they were once again given each of the four measures previously described: (1) Family Interaction Task, (2) Family Problem Behavior Scale, (3) Tennessee Self-Concept Scale, and (4) Drug and Delinquent Behavior Questionnaire.

Research Design

A true experimental Pretest-Posttest Control Group Design was used for this study (Campbell & Stanley, 1963). Subject families were randomly assigned to experimental groups using referral source as a blocking variable. Ten families each completed one of the three experimental treatments--Family Program, Adolescent Program, and Control. Preceding and following treatment, each family was given four measures. A summary of the research design is found in Figure 4.2.

Hypotheses

Null Hypothesis 1

There will be no difference between the control group and the average of the two treatment groups.

Symbolically:

$$H_{01}: \frac{T_1 + T_2}{2}$$

Where C = Control Group

T_1 = Family Program

T_2 = Adolescent Program

		Pretest Measures				Posttest Measures				
		<u>R</u>	Family Interaction Task	Family Problem Behavior Scale	Tennessee Self-Concept Scale	Drug and Delinquent Behavior Questionnaire	Family Interaction Task	Family Problem Behavior Scale	Tennessee Self-Concept Scale	Drug and Delinquent Behavior Questionnaire
Group 1	s1									
	s2									
										
	s10									
Group 2	s1									
	s2									
										
	s10									
Group 3	s1									
	s2									
										
	s10									

Figure 4.2. Summary of data-collection procedure.

Alternate Hypothesis 1: The average scores of the two treatment groups will not equal that of the control group.

$$H_{1a}: C \neq \frac{T_1 + T_2}{2}$$

Where C = Control Group

T_1 = Family Program

T_2 = Adolescent Program

Null Hypothesis 2

No difference will be found in averages of the dependent variable scores between the family treatment group and the adolescent treatment group.

Symbolically:

$$H_{02}: T_1 = T_2$$

Where T_1 = Family Program

T_2 = Adolescent Program

Alternate Hypothesis: The average family treatment group scores on the dependent variables will not equal those of the adolescent treatment group.

$$H_{2a}: T_1 \neq T_2$$

Where T_1 = Family Program

T_2 = Adolescent Program

Data Analysis

Two analyses were employed to determine if change took place as a result of treatment. A multivariate analysis of covariance (MANCOVA) was performed on the data obtained from the Family Interaction Task, the Family Problem Behavior Scale, and the Tennessee Self-Concept Scale. The data obtained from the Drug and Delinquent Behavior Questionnaire were analyzed separately with a Multivariate Analysis of Covariance (MANCOVA) applied to the posttest scores, with pretest scores used as the covariates.

There are three reasons the MANCOVA was chosen to test each of the two orthogonal contrasts and also the three scores from the Problem Behavior Questionnaire. First, the MANCOVA is a test of posttest differences between groups. This is the kind of test a treatment evaluation requires. Second, randomization could not be counted upon to provide equivalent groups because of the varying acceptance and dropout rates of each experimental group. Therefore, use of the pretest as a covariate was essential to control the confounding variables. Third, a univariate analysis repeated 12 times, once for each dependent variable, would result in a very high overall Type I error. A multivariate analysis treats the collection of variables simultaneously and reduces the possibility that demonstrated differences are a result of Type I errors rather than treatment differences.

This analysis does not consider the partial group treatment of families. The family is the unit of analysis, but obviously there is some family-by-group interaction that is not considered in this analysis. It was decided not to use the group as the unit of analysis for

two major reasons. First, only a small number of families could be treated at one time, and the evaluation needed to be completed within one year after the program's development. Second, the treatment groups were open-ended--families entered and left at any point. The attendance varied from week to week, reducing the effect of relationships between participating families. However, analyzing families as units, rather than groups as units, will result in more liberal tests than indicated by the listed Type I error of .05 per test.

In total, four statistical tests were planned for the posttest data, each at $p = .05$, yielding an experimentwise error rate of .20. A summary of the analysis design can be found in Figure 4.3.

Summary

The effects of a short-term family treatment program for families with an acting-out adolescent were compared to the effects of an adolescent treatment program and a no-treatment control group. Thirty families, randomly assigned to three experimental groups using referral source as a blocking variable, were pretested on four measures, treated, and then posttested on the same measures. The measures used to evaluate change as a result of treatment were: (1) the Family Interaction Task, (2) the Family Behavior Change Scale, (3) the Tennessee Self-Concept Scale, and (4) a Drug and Delinquent Behavior Questionnaire. The posttest data from the family and self-concept measures were analyzed with a multivariate analysis of covariance. The data from the Drug and Delinquent Behavior Questionnaire were also analyzed with a Multivariate Analysis of Covariance.

CHAPTER 5

RESULTS

Two treatment programs for families with acting-out adolescents were described in Chapter 4. One program treated the entire family, whereas the other treated only the identified adolescent. Also described was a research strategy to evaluate the effects of each of the two programs by comparing them to each other and to a no-treatment control group. In this chapter the results of the evaluation are presented.

Two hypotheses were tested initially, using three instruments to measure change. These instruments were: (1) the Family Interaction Task, which yielded three variables; (2) the Family Behavior Change Scale, which yielded two variables; and (3) the Tennessee Self-Concept Scale, which yielded two variables. Each experimental hypothesis is presented next, followed by the analytic data used to evaluate the hypothesis.

Following the presentation of the results of the first two hypothesis tests, data from the fourth measure, which was also given to subject families, are presented and explored. The Drug and Delinquent Behavior Questionnaire, the fourth measure, was analyzed separately using a MANCOVA and is hence reported last.

Analysis of the Experimental Hypotheses

Hypothesis 1

No difference will be found between the dependent variable scores of the control group and the average of the dependent variable scores of the two treatment groups.

Stated symbolically:

$$C = \frac{T_1 + T_2}{2}$$

Data from the family and self-concept measures were used to evaluate this hypothesis. The mean and standard deviation of each experimental group on the nine family and self-concept posttest variables are summarized in Table 5.1.

Differences between groups were very small on all nine variables. The largest differences relative to the standard deviation occurred on the Tennessee Self-Concept Scale Total Positive score. On the Total Positive score the group means ranged from 34.67 for the control group adolescents to 41.0 for the family group adolescents.

The posttest data were analyzed using a Multivariate Analysis of Covariance, MANCOVA, with eight pretest scores on these same variables used as covariates. There are eight covariates (pretest scores) and nine dependent variables (posttest scores) because one of the dependent variables, the FPB-Change Score, cannot be measured in a pretest. Figure 5.1 is a summary outline of the Multivariate Analysis of Covariance.

Table 5.1: Posttest Mean and Standard Deviation of Each Group on Each Variable

Group	<u>n</u>	TSCS TotP	TSCS SC	FIT Clos	FIT Disr	FIT Pecu	PBR AvP	PBR Teen	PBR AvF	FCS
Control = G ₁	<u>X̄</u>	34.67	53.56	.0580	.2335	.0023	4.000	3.000	3.667	5.000
	<u>s</u>	8.063	8.156	.0253	.2027	.0047	.9583	.8660	.7071	11.39
Adolescent = G ₂ Program	<u>X̄</u>	37.82	54.72	.0557	.2896	.0000	3.364	3.091	3.273	4.909
	<u>s</u>	8.072	7.799	.0462	.2073	.0000	.9244	1.221	.9045	6.685
Family = G ₃ Program	<u>X̄</u>	41.00	53.40	.0822	.2991	.0122	3.200	2.500	3.100	7.700
	<u>s</u>	10.42	7.604	.0428	.1154	.0207	1.252	1.1785	1.2867	10.57

Key: TSCS TotP = Tennessee Self-Concept Scale--Total Positive Score

TSCS SC = Tennessee Self-Concept Scale--Self-Criticism Score

FIT Clos = Family Interaction Task--Closure Score

FIT Disr = Family Interaction Task--Disruption Score

FIT Pecu = Family Interaction Task--Peculiar Score

PBR AvP = Family Problem Behavior--Average Parent Score

PRB Teen = Family Problem Behavior--Teen Score

PBR AvF = Family Problem Behavior--Average Family Score

FCS = Family Problem Behavior--Change Score

	Covariates (pretest)								Dependent Variables (posttest)											
	$\underline{s}$	$\underline{v}$	v_1	v_2	v_3	v_4	v_5	v_6	v_7	v_8	v_1	v_2	v_3	v_4	v_5	v_6	v_7	v_8	v_9	
Control = G_1	1																			
	2																			
	.																			
	.																			
	10																			
Adolescent Program = G_2	1																			
	2																			
	.																			
	.																			
	10																			
Family Program = G_3	1																			
	2																			
	.																			
	.																			
	10																			

$H_{01}: C - (\frac{T_1 + T_2}{2}) = 0$

$H_{02}: T_1 - T_2 = 0$

Figure 5.1. Summary outline of the Multivariate Analysis of Covariance.

The Null Hypothesis 1 ($C = \frac{T_1 + T_2}{2}$) could not be rejected, $F = .6450$; $df = 9,11$; $p < .7402$. To gain an understanding of how different the three experimental groups were on the pretest variables, and how these differences might have affected their outcome scores, an examination of the covariates was undertaken. This question is especially important because of the possible selection-by-treatment interaction described in Chapter 3 for the family treatment group.

A regression analysis was used to discover the amount of the variance accounted for in each dependent variable by the covariates as a group. The highest association was found for variable 1, TSCS--Total Positive Score. The collection of covariates accounted for 52.31% of the variance on this measure. The probability of this result occurring by chance was less than .0415. The second highest association was found for variable 4, FIT--Disruption Score. The collection of covariates accounted for 43.03% of the variance on this measure. The probability of this result occurring by chance was less than .1411.

The statistics for the regression analysis using all eight covariates simultaneously are shown in Table 5.2. (It is important to note that these figures are most likely inflated due to the high ratio of variables to subjects.)

Very few of the covariates accounted for a significant amount of the variance. Therefore, it seems possible that using all nine covariates did not improve the sensitivity of the analysis to possible real differences between experimental groups. To test this possibility, an F test of the hypothesis of no association between dependent

variables and covariates was carried out. The null hypothesis could not be rejected, $F = 1.2360$; $df = 72,74$; $p < .1829$. Because the covariates as a group did not account for a significant amount of the variance in the dependent variables, they were dropped from the analysis. A multivariate analysis of variance (MANOVA) was then applied to the posttest scores in a retest of Hypothesis 1: Is there a difference between the posttest scores of the control group and the average posttest scores of the two treatment groups? Again, the Null Hypothesis 1 of no difference could not be rejected, $F = .7149$; $df = 9,19$; $p < .6896$.

Table 5.2: Statistics for Regression Analysis Using Eight Covariates Simultaneously

Variable	Square Multiple <u>R</u>	Multiple <u>R</u>	<u>F</u>	<u>p</u> less than
TSCS-TotP	.5231	.7233	2.6050	.0415
TSCS-SC	.3431	.5858	1.2405	.3296
FIT-Clos	.1924	.4386	.5658	.7927
FIT-Disr	.4303	.6560	1.7937	.1411
FIT-Pecu	.3580	.5983	1.3242	.2906
PBR-AvP	.1529	.3910	.4285	.8894
PBR-Teen	.3867	.6218	1.4972	.2231
PBR-AvF	.1413	.3759	.3909	.9121
FCS	.3400	.5831	1.2236	.3380

Key: TSCS-TotP = Tennessee Self-Concept Scale--Total Positive Score
 TSCS-SC = Tennessee Self-Concept Scale--Self-Criticism Score
 FIT-Clos = Family Interaction Task--Closure Score
 FIT-Disr = Family Interaction Task--Disruption Score
 FIT-Pecu = Family Interaction Task--Peculiar Score
 PBR-AvP = Family Problem Behavior--Average Parent Score
 PBR-Teen = Family Problem Behavior--Teen Score
 PBR-AvF = Family Problem Behavior--Average Family Score
 FCS = Family Problem Behavior--Change Score

Consistent with the hypothesis of no association between the independent and dependent variables, the probability at which the reported posttest results would occur by chance dropped from .7402 found with the MANCOVA to .6896 with the MANOVA. However, the findings remained nonsignificant.

To further an understanding of any group differences on the pretest, pretest group means were examined. Only two of the eight variables demonstrated differences between groups which were greater than 1 standard deviation. These two variables were the Disruption score of the Family Interaction Task and the Average Family score of the Problem Behavior Rating. Even on these two scales, the differences were quite small, indicating little or no systematic difference between the groups on the pretest. The means and standard deviations of each group on each pretest variable are summarized in Table 5.3.

Additional exploration of the data. At this point, it was clear that a significant difference between the control group and the average of the two treatment groups could not be demonstrated using the nine outcome variables simultaneously. Perhaps the variables were clustering in such a way as to obscure any real differences. To examine this possibility, correlations between all dependent variables for the total sample were computed using Pearson's r . These correlations are presented in Table 5.4. Next, using a procedure developed by McQuitty (1957), a linkage analysis was performed. The dependent variables clustered into three groups. The first cluster comprised the three Family Problem Behavior Rating scales. The

Table 5.3: Pretest Mean and Standard Deviation of Each Group on Each Variable

Group	<u>n</u>	TSCS TotP	TSCS SC	FIT Clos	FIT Disr	FIT Pecu	PBR AvP	PBR Teen	PBR AvF
Control = G ₁	$\bar{X}$	31.67	51.0	.0960	.2563	.0115	4.722	3.494	3.889
	<u>s</u>	8.43	9.80	.0551	.1133	.0343	.4410	1.014	.6009
Adolescent Program = G ₂	$\bar{X}$	37.36	53.7	.0881	.1438	.0013	4.409	3.909	4.182
	<u>s</u>	6.39	6.33	.0445	.1115	.0029	.5839	.8312	.6030
Family Program = G ₃	$\bar{X}$	37.5	51.8	.0905	.2964	.0119	4.550	4.100	4.500
	<u>s</u>	9.88	7.10	.0707	.2532	.0207	.5503	.8756	.5271

Key: TSCS TotP = Tennessee Self-Concept Scale--Total Positive Score
TSCS SC = Tennessee Self-Concept Scale--Self-Criticism Score
FIT Clos = Family Interaction Task--Closure Score
FIT Disr = Family Interaction Task--Disruption Score
FIT Pecu = Family Interaction Task--Peculiar Score
PBR AvP = Family Problem Behavior--Average Parent Score
PBR Teen = Family Problem Behavior--Teen Score
PBR AvF = Family Problem Behavior--Average Family Score

Table 5.4: Correlations Between All Dependent Variables

	TSCS TotP	TSCS SC	FIT Clos	FIT Disr	FIT Pecu	PBR AvP	PBR Teen	PBR AvF	FCS
TSCS TotP	...	.0470	.0853	.2123	-.1542	-.1857	-.2196	-.1789	.4797
TSCS SC	.0470	...	-.3738	-.0908	.0737	-.0634	-.2968	-.2071	-.0613
FIT Clos	.0853	-.3738	...	.4990	.1623	.1301	.4054	.3067	.4067
FIT Disr	.2123	-.0908	.4990	...	.1697	.2182	.1215	.2440	.1742
FIT Pecu	-.1542	.0737	.1623	.1697	...	-.0146	.0473	.0263	.0022
PBR AvP	-.1857	-.0634	.1301	.2182	-.0146	...	.5367	.8390	-.1594
PBR Teen	-.2196	-.2968	.4054	.1215	.0473	.5367	...	.7945	-.1050
PBR AvF	-.1789	-.2071	.3067	.2440	.0263	.8390	.7945	...	-.0803
FCS	.4797	-.0613	.4067	.1742	.0022	-.1594	-.1050	-.0803	...

Key: TSCS TotP = Tennessee Self-Concept Scale--Total Positive Score

TSCS SC = Tennessee Self-Concept Scale--Self-Criticism Score

FIT Clos = Family Interaction Task--Closure Score

FIT Disr = Family Interaction Task--Disruption Score

FIT Pecu = Family Interaction Task--Peculiar Score

PBR AvP = Family Problem Behavior--Average Parent Score

PBR Teen = Family Problem Behavior--Teen Score

PBR AvF = Family Problem Behavior--Average Family Score

FCS = Family Problem Behavior--Change Score

correlations in this cluster were .79 and .84. The second cluster comprised the three Family Interaction Task scales plus the Tennessee Self-Concept Scale--Self-Criticism Score. The correlations in this cluster ranged from .17 to .50. The third cluster comprised the Tennessee Self-Concept Scale--Total Positive Score and the Family Change Score. This correlation was .48. The configuration of the clusters and their correlations are summarized in Figure 5.2.

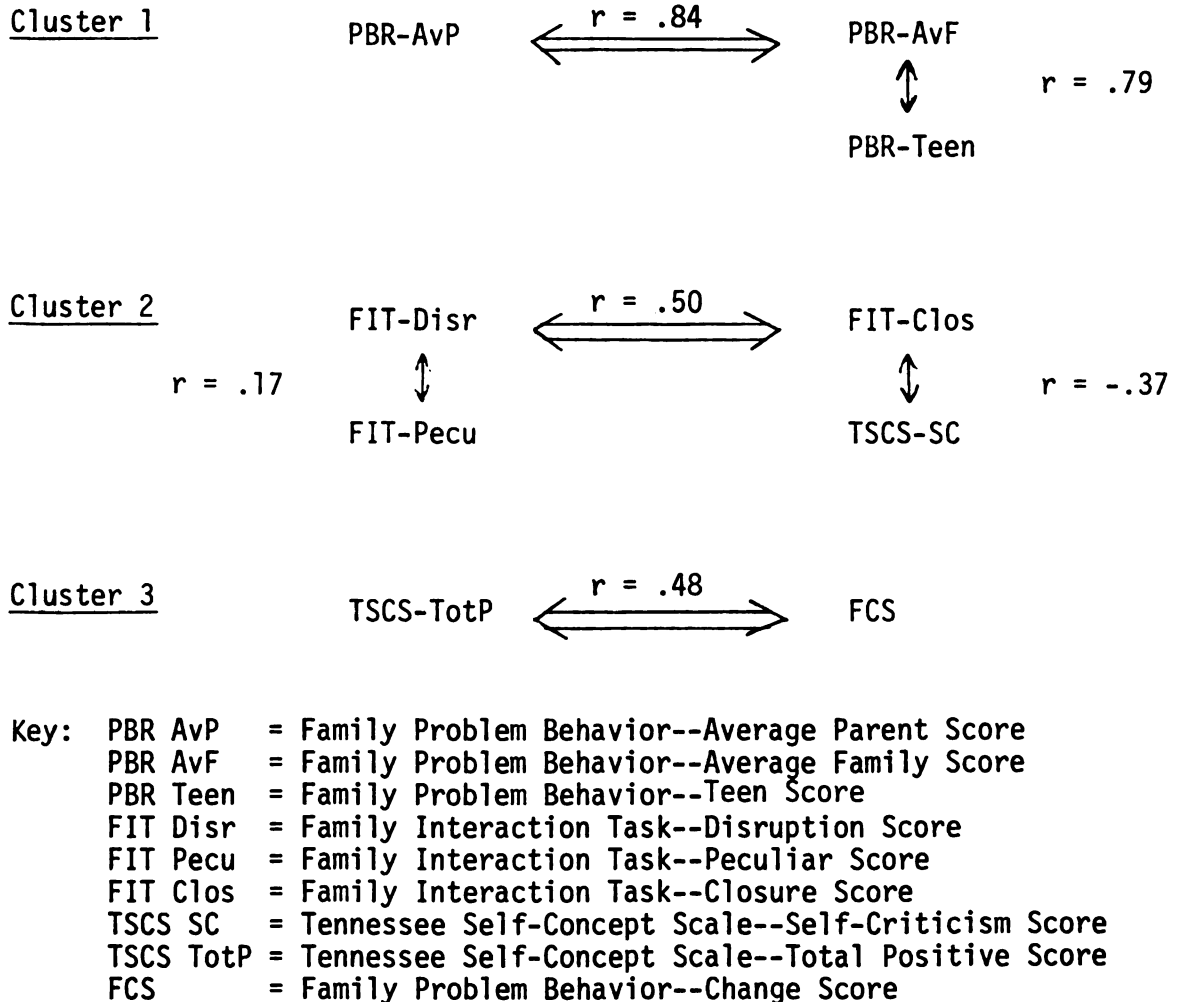


Figure 5.2. Dependent variable clusters and their correlations.

The question at this point was: Is there a difference between the posttest scores of the control group and the average posttest scores of the two treatment groups for each of the three groups of clustered variables? Because it was already known that the use of covariates might not improve the sensitivity of the analysis, their usefulness was tested for each cluster. The covariates used for each cluster were the pretest scores on the measures in that cluster, with the exception of the Family Change Score, for which there was no pretest score. For example, Cluster 1 dependent variables were the three posttest scores derived from the Family Problem Behavior Rating Scale. Accordingly, the covariates tested with this cluster were the three pretest scores derived from the Family Problem Behavior Rating Scale.

The covariates in Clusters 1 and 2 did not remove a significant amount of the variance of the dependent variables. Cluster 1 test of the significance of the three covariates yielded $F = .9490$; $df = 9,53.7$; $p < .4917$. Cluster 2 test of the significance of the four covariates yielded $F = 1.1896$; $df = 16,61.7$; $p < .3017$. For each of the first two clusters, a Multivariate Analysis of Variance (MANOVA) was performed on the null hypothesis of no difference between the control group score and the average score of the two treatment groups. For Cluster 1 (the three Family Problem Behavior Rating scores), the null hypothesis could not be rejected, $F = .2774$; $df = 3,22$; $p < .8412$. For Cluster 2 (the three Family Interaction Task scores and the TSCS--Self-Criticism score), the null hypothesis could not be rejected either, $F = .5959$; $df = 4,20$; $p < .6698$.

Cluster 3 consisted of the Tennessee Self-Concept Scale--Total Positive score and the Family Change Score. The one covariate in Cluster 3 (TSCS--Total Positive score) did remove a significant amount of the variance in the dependent variable. The test of the significance of the covariate yielded $F = 7.3406$; $df = 2,25$; $p < .0032$. Accordingly, a Multivariate Analysis of Covariance (MANCOVA) was performed on the dependent variables of Cluster 3 to test the null hypothesis. The null hypothesis could not be rejected, $F = .0926$; $df = 2,25$; $p < .9119$.

A summary of the results of the test of Hypothesis 1 using the clustered variables is presented in Table 5.5. None of the three clusters of variables detected any difference between the control group score and the average score of the two treatment groups.

Hypothesis 2

No difference will be found on the dependent variable scores between the Family Treatment Group and the Adolescent Treatment Group.

Stated symbolically:

$$T_1 = T_2$$

Data from the family and self-concept measures were used to evaluate this hypothesis. The mean and standard deviation of each experimental group on the nine family and self-concept posttest measures are summarized in Table 5.1.

These posttest data were analyzed using a Multivariate Analysis of Covariance, MANCOVA, with eight pretest scores on these same variables used as covariates. Figure 5.1 is a summary outline of the

Table 5.5: Summary of Results of the Clustered Dependent Variables, Hypothesis 1

Cluster 1

Variables Included	Problem Behavior Rating: Average Parent, Teen, and Average Family
Test of Covariates	$F = .9490$; $df = 9, 53.6928$; $p < .4917$
Test of Hypotheses	
MANOVA	H_{01} : $F = .2774$; $df = 3, 22$; $p < .8412$

Cluster 2

Variables Included	Family Interaction Task: Closure, Peculiar, and Disruption; Tennessee Self-Concept Scale--Self-Criticism
Test of Covariates	$F = 1.1896$; $df = 16, 61.7386$; $p < .3017$
Test of Hypotheses	
MANOVA	H_{01} : $F = .5959$; $df = 4, 20$; $p < .6698$

Cluster 3

Variables Included	Tennessee Self-Concept Scale: Total Positive and Family Change Score
Test of Covariates	$F = 7.3406$; $df = 2, 25$; $p < .0032$
Test of Hypotheses	
MANCOVA	H_{01} : $F = .0926$; $df = 2, 25$; $p < .9119$

Multivariate Analysis of Covariance. The null hypothesis could not be rejected, $F = 2.3482$; $df = 9,11$; $p < .0917$.

Using the information generated when testing Hypothesis 1, that the covariates as a group did not account for a significant amount of the variance, a Multivariate Analysis of Variance (MANOVA) was used to retest Hypothesis 2. The null hypothesis of no difference between the scores of the two treatment groups could not be rejected, $F = 1.3340$; $df = 9,19$; $p < .2841$. Contrary to the hypothesis of no association between the dependent and independent variables, the probability at which the reported posttest results would occur by chance rose from .0917 found with the MANCOVA to .2841 with the MANOVA. It appears that the covariates did extract a small but important portion of the variance. However, the outcomes of both the MANCOVA and MANOVA tests failed to result in the rejection of the null hypothesis.

Additional exploration of the data. Using the variable clusters discovered during the test of Hypothesis 1 and summarized in Figure 5.2, the hypothesis of no difference between the two treatment groups was tested using the scores on the variables in each of the three clusters.

The hypothesis was first tested with a MANOVA using the three variables in Cluster 1, the Family Problem Behavior Rating scores. The MANOVA was used because the covariates associated with these dependent variables did not remove a significant amount of the variance. The hypothesis of no difference could not be rejected, $F = .9354$; $df = 3,22$; $p < .4404$.

The hypothesis of no difference between treatment groups was then tested with a MANOVA using the variables in Cluster 2, the Family Interaction Task scores and the Tennessee Self-Concept Scale--Self-Criticism score. Again, the MANOVA was chosen because the covariates associated with these variables did not remove a significant amount of the variance. The hypothesis of no difference between treatment groups could not be rejected, $F = 1.6671$; $df = 4,20$; $p < .1970$.

The final test of the hypothesis was performed with a MANCOVA using the variables in Cluster 3, the Tennessee Self-Concept Scale--Total Positive score and the Family Change score. The MANOCVA was chosen because the test of no association between the independent variables (the covariate) and the dependent variables (the posttest score) was rejected at the $p < .0032$ level. The hypothesis of no difference between the two treatment groups again could not be rejected, $F = .5122$; $df = 2,25$; $p < .6054$. A summary of the results of the test of Hypothesis 2 using the clustered variables is presented in Table 5.6. None of the three clusters of variables detected any difference between the two treatment groups.

Hypothesis 3

Hypothesis 3 tested the difference between the dependent variable scores of the control group and the average of the dependent variable scores of the two treatment groups.

$$H_{03}: C = \frac{T_1 + T_2}{2}$$

Table 5.6: Summary of Results of the Clustered Dependent Variables, Hypothesis 2

Cluster 1

Variables Included	Problem Behavior Rating: Average Parent, Teen, and Average Family
Test of Covariates	$\underline{F} = .9490$; $\underline{df} = 9, 53.6928$; $\underline{p} < .4917$
Test of Hypotheses	
MANOVA	Ho_2 : $\underline{F} = .9354$; $\underline{df} = 3, 22$; $\underline{p} < .4404$

Cluster 2

Variables Included	Family Interaction Task: Closure, Peculiar, and Disruption; Tennessee Self-Concept Scale--Self-Criticism
Test of Covariates	$\underline{F} = 1.1896$; $\underline{df} = 16, 61.7386$; $\underline{p} < .3017$
Test of Hypotheses	
MANOVA	Ho_2 : $\underline{F} = 1.6671$; $\underline{df} = 4, 20$; $\underline{p} < .1970$

Cluster 3

Variables Included	Tennessee Self-Concept Scale--Total Positive and Family Change Score
Test of Covariates	$\underline{F} = 7.3406$; $\underline{df} = 2, 25$; $\underline{p} < .0032$
Test of Hypotheses	
MANCOVA	Ho_2 : $\underline{F} = .5122$; $\underline{df} = 2, 25$; $\underline{p} < .6054$

The mean and standard deviation of each group on the posttest for each of the three drug and delinquent behavior scales are summarized in Table 5.7. Group means on the Drug Use scale varied from 38.6 to 45.1, with a standard deviation varying from 14.8 to 35.0. Group means on the Status Delinquent Behavior scale varied from 19.0 to 48.0, with the standard deviation varying from 14.8 to 35.0. Group means on the Non-Status Delinquent Behavior scale varied from 1.1 to 7.8, with the standard deviation varying from 2.4 to 13.8.

Table 5.7: Mean and Standard Deviation of Each Group on the Scales of the Drug and Delinquent Behavior Questionnaire

			<u>n</u>	Drug Use	Status Delinquency	Non-Status Delinquency
Control	= G ₁	10	$\bar{X}$	40.6	19.0	7.8
			$\underline{s}$	43.4	22.5	13.8
Adolescent Program	= G ₂	10	$\bar{X}$	45.1	48.0	1.6
			$\underline{s}$	36.6	35.0	3.7
Family Program	= G ₃	10	$\bar{X}$	38.6	24.0	1.1
			$\underline{s}$	20.8	14.8	2.4

The posttest data were analyzed using a Multivariate Analysis of Variance (MANCOVA) with the pretest data for the same variables used as covariates. The Null Hypothesis 3 could not be rejected, $F = 1.3672$; $df = 3, 22$; $p < .2789$.

Hypothesis 4

Hypothesis 4 tested the difference between the two treatment groups.

$$H_{04}: T_1 = T_2$$

The mean and standard deviation of each experimental group on the posttest for each of the three drug and delinquent behavior scales are summarized in Table 5.7.

The posttest data were analyzed using a Multivariate Analysis of Covariance (MANCOVA), with the pretest data for the same variables used as covariates. The Null Hypothesis 4, $T_1 = T_2$, could not be rejected, $F = 1.5036$; $df = 3,22$; $p < .2414$.

Summary of Research Results

Two research hypotheses were tested using a Multivariate Analysis of Covariance (MANCOVA) on the nine dependent variables derived from three family and self-concept measures. Null Hypothesis 1, no difference will be found between the dependent variable scores of the control group and the average of the dependent variable scores of the two treatment groups, could not be rejected, $F = .6450$; $df = 9,11$; $p < .7402$. Null Hypothesis 2, no difference will be found on the dependent variable scores between the family treatment group and the adolescent treatment group, could not be rejected, $F = 2.3482$; $df = 9,11$; $p < .0917$.

Further exploration of the data was undertaken into the clustering patterns of the dependent variables because of the possibility that the way the variables clustered was obscuring some real

differences between groups. The dependent variables fell into three nonoverlapping clusters. Cluster 1 was made up of the three Family Problem Behavior Rating scales. Cluster 2 comprised three Family Interaction Task scales and the Tennessee Self-Concept Scale--Self-Criticism score. Cluster 3 was made up of the Tennessee Self-Concept Scale--Total Positive score and the Family Change score. Multivariate analyses of the variables in each cluster were then carried out on both null hypotheses: (1) No difference between scores of the control group and the average of scores of the two treatment groups, (2) No difference between the scores of the two treatment groups. In all cases, the null hypotheses could not be rejected.

All analyses failed to demonstrate any difference between the control group score and the average score of the two treatment groups. They also failed to demonstrate any difference between the two treatment groups. Furthermore, the nonsignificant differences found between groups were uniformly small, indicating that the problem was not lack of power.

The fourth and final measurement instrument used to assess change as a result of treatment was the Drug and Delinquent Behavior Questionnaire. Responses from this questionnaire were also analyzed using a Multivariate Analysis of Covariance (MANCOVA). No differences were found between the three experimental groups on the posttest responses to the questionnaire.

In summary, none of the data supported the claim that either of the two treatment programs produced positive change in the participants.

Because of the additional statistical tests applied to the data following the failure to reject the null hypothesis, total experiment-wise error rate rose from the planned .20 to .65. At this rate, .65 of the 13 tests of significance performed would be expected to be significant by chance alone. None of the 13 tests showed any significant differences.

CHAPTER 6

SUMMARY AND CONCLUSIONS

The purpose of this study was to examine, by experimental design, the clinical effectiveness of two treatment programs offered by a paraprofessional community service agency to families with an acting-out adolescent. The results of this evaluation raised interesting questions regarding both program evaluation strategy and program effectiveness. This chapter includes a brief summary of literature relating to families with acting-out adolescents, a summary of this research project, and a discussion of issues raised by this study as well as implications for further research.

Brief Literature Summary

Adolescent Family Problems

Many problems in adolescent families have been seen as the result of stress related to rapid social change. Increasingly, the family is required to take more responsibility for meeting the physical and emotional needs of its members; simultaneously, the family's resources with which to meet those needs are decreasing. Bronfenbrenner (1970) stated that the decline in intergenerational communication has been largely responsible for the failure of the modern family to meet the challenges of its new social world.

Family Interaction Studies

Studies examining interaction differences in normal adolescent families and in families with a delinquent adolescent were reviewed. It was found that normal adolescent family interaction differs in systematic ways from dysfunctional adolescent family interaction. Ferreira and Winter (1965) found that normal families were better at making joint decisions than were delinquent families. Normal families evidenced more initial agreement on problem solutions than delinquent families and took less time to resolve their existing differences than did delinquent families. In a similar study, Mead and Campbell (1972) independently demonstrated the same phenomenon. Alexander (1973b) found that families with a delinquent adolescent demonstrate a higher rate of defensive communication than normal families and that defensive communication is reciprocal in delinquent families whereas it is not reciprocal in normal families. Alexander also found that delinquent families demonstrate a lower rate of supportive communication than normal families and that supportive communication is not reciprocal in delinquent families, whereas it is reciprocal in normal families.

Hetherington, Stouwie, and Ridberg (1971) found that normal families express less total conflict, less hostility, more warmth, and that parents were less power assertive than families with delinquent children. Parents in normal families were more willing to listen to their children than were parents in delinquent families.

What emerged from these several studies of family interaction was the conclusion that normal families are different from delinquent

families on both static agreement and satisfaction measures, as well as on their methods of solving problems.

Family Treatment Studies

Studies evaluating the effectiveness of various adolescent family treatment programs were also reviewed. For three of the studies, major methodological and/or statistical flaws challenged the positive evaluation that each researcher gave his/her treatment program(s).

Three of the treatment programs reviewed treated each family separately from other families. Parsons and Alexander (1973) studied families from a juvenile court population. They provided a brief series of sessions in which the family was taught to (1) differentiate rules from requests, (2) develop reciprocity in the exchange of positive responses, and (3) increase the variability of family communication patterns. An interesting concept presented in this study was the "matching-to-sample" philosophy, which assumes that if a given delinquent family can change its interaction patterns to be more similar to those of normal families, the delinquent family will begin to behave more like normal families in other areas; i.e., the delinquent teenager will stop unacceptable behavior. Underlying this philosophy is a belief in the healing powers of the family system itself. Despite minor deviations from accepted research design, Parsons and Alexander were able to find differences between their treatment and control groups. Their treatment did produce change in the desired direction.

Katz, Krasinski, Philip, and Wieser (1975) provided an unspecified form of brief family therapy and discovered improvement in treatment

families not found in control families, as measured by many variables. Again, the repeated use of a univariate statistic resulted in a very high error estimate (721%), which guaranteed that they would find "significant" differences.

Beal and Duckro (1977) measured only one variable--the rate of successful diversion of juvenile court families from the official adjudication procedure. They provided eight conjoint family therapy sessions aimed at resolving through interpersonal change whatever crisis had sent the family to court. They demonstrated a diversion rate that was higher than that achieved by the traditional probation officer approach ($p < .05$). The design and analysis of this study were appropriate for its goal. However, the control group to which the treatment group was compared was not equivalent, and the results attributed by the researcher solely to treatment effect were possibly the result of an interaction between selection and treatment.

The final two treatment programs reviewed provided family group experiences. Stanley (1978) took normal volunteer families from a school and provided a 10-week structured course addressing both family communication skills and attitudes. The program focused on conflict resolution and rule setting, using active listening skills as the major tool. She found change on both communication and attitudinal variables. As did most other treatment evaluators, Stanley repeatedly used a univariate statistic to analyze a number of variables separately. Her high error estimate (62%) throws a considerable shadow on the interpretation of significant findings.

Larsen (1972) also worked with volunteer parents from a school setting and attempted to change both communication patterns and attitudinal variables. He provided three different treatment programs and compared them all to a no-treatment control group. Parent Effectiveness Training (PET) was offered to one group. This program teaches the use of listening and problem-solving skills to resolve parent-child conflicts. An Achievement Motivation Program (AMP) was offered to a second group. This program focused on identifying the participants' personal strengths, and helped them to build on those strengths. The last treatment program was a Discussion-Encounter Group (DEG) experience and consisted in increasing the awareness and the sharing of feelings about such controversial parent-child topics as dating, dress, and manners. Larsen presented group means (but not standard deviations) and concluded that both PET and AMP were effective in producing desired change. His data were not analyzed statistically, thereby making it impossible to determine whether the differences found were significant or not.

Current Research Study and Results

The effects of a short-term family treatment program for families with an acting-out adolescent were compared to the effects of an adolescent treatment program and a no-treatment control group. Thirty families, randomly assigned to three experimental groups using referral source as a blocking variable, were pretested on four measures, treated, and then posttested on the same measures. The measures used to evaluate change as a result of treatment were (1) the Family

Interaction Task (FIT), (2) the Family Problem Behavior Scale (FPBS), (3) the Tennessee Self-Concept Scale (TSCS), and (4) a Drug and Delinquent Behavior Questionnaire. The posttest data from the family and self-concept measures were analyzed with a multivariate analysis of covariance. The data from the behavior questionnaire were also analyzed with a Multivariate Analysis of Covariance.

Two research hypotheses were tested using a Multivariate Analysis of Covariance on the collection of nine dependent variables derived from three family and self-concept measures. Null Hypothesis 1, no difference will be found on the dependent variables between the control group and the average of the two treatment groups, could not be rejected, $F = .6450$; $df = 9,11$; $p < .7402$. Null Hypothesis 2, no difference will be found on the dependent variables between the two treatment groups, could not be rejected, $F = 2.3482$; $df = 9,11$; $p < .0917$.

Further exploration into the clustering patterns of the dependent variables was undertaken, because of the possibility that the way the variables clustered was obscuring some real differences between groups. The dependent variables fell into three nonoverlapping clusters: Cluster 1 was made up of the three Family Problem Behavior (FPB) rating scales (Average Parent, Teen, and Average Family). Cluster 2 comprised the three Family Interaction Task (FIT) scales (Closure, Disruption, and Peculiar) and the Tennessee Self-Concept Scale (TSCS)--Self-Criticism score. Cluster 3 was made up of the TSCS--Total Positive score and the FPB-Change score. Multivariate analyses of the variables in each cluster were then carried out on both null hypotheses:

(1) no difference between scores of the control group and the average scores of the two treatment groups and (2) no difference between the scores of the two treatment groups. In all cases, the null hypotheses could not be rejected.

All multivariate analyses failed to demonstrate any difference between the control group score and the average score of the two treatment groups. They also failed to demonstrate any difference between the two treatment groups.

The fourth and final measurement instrument used to assess change as a result of treatment was the Drug and Delinquent Behavior Questionnaire. Responses from this questionnaire were analyzed with a Multivariate Analysis of Covariance. No differences were found among the three experimental groups on posttest responses to the questionnaire.

In summary, none of the data supported the claim that either of the two treatment programs produced positive change in the participants.

Discussion

During the course of the literature review, it became apparent that some of the reviewed clinical evaluation research had been done with poorly controlled methodology and improper statistical analyses. The goal of the present study was to evaluate two treatment programs using standard conventions of research methodology and appropriate analyses. It was hoped that whatever positive results were found

could be clearly attributed to the independent variables and not to statistical artifacts or sloppy design.

During the course of this study, certain concessions were made to the reality imposed by research in a community (as opposed to a laboratory) setting; subject families were volunteers, making selection an independent variable in the research design. The effects of selection and its impact on interpretation of results are discussed in this section.

Next discussed is the importance of using a statistical analysis consistent with research design and some consequences of inappropriate analyses.

The third area of discussion is a possible explanation of the cluster patterns of the dependent variable.

Finally, the fact that no difference was found between the treatment groups is discussed. What was (or might have been) responsible for this finding?

Selection as an Independent Variable

Families who were referred to the experimental programs for treatment were not a random sample of families with an acting-out adolescent. They were families who, for unknown reasons, were referred by involved mental health professionals, or families who requested treatment themselves. Clearly, the discretionary nature of this process made selection a critical problem in this study which threatened external validity. A second selection factor was that not all referred families accepted the treatment program to which they

were assigned. The initial strategy developed to deal with the problem of families not accepting their treatment assignment was to pretest all families referred for treatment, whether they accepted treatment or not. This would have allowed any systematic difference between "not-accept" families and "accept" families to be explored. However, most families not accepting treatment also refused to be tested. Therefore, whatever differences existed between the two groups of families remain unknown, and the effects of treatment were contaminated in two ways by the selection process. Further adding to this confounding situation was the fact that one of the experimental groups (the Family Treatment Program) had a higher "not-accept" rate than either of the other two groups. This situation might have been due to the parental participation requirement present in the Family Program and not present in the Adolescent Program and the Control Group. If this were so, families in the Family Program might collectively be different from families in the other two groups. Chi Square analyses of the pretest measures failed to disclose any significant differences between groups. The extent of contribution of the selection process remains unanswered, and any significant findings would have been interpreted as resulting from a selection-by-treatment interaction.

The original (but discarded) design for this study, which required pretests for all referred families, would have allowed some of the effects of the independent variable "selection" to be assessed. Selection, as represented by volunteer subjects, is a part of all human research in nonlaboratory settings, and is not explicitly

discussed in many research reports, leaving the reader with the impression that whatever results were found were solely a result of the effects of treatment. This commonplace misrepresentation of findings can lead to problems. For instance, a probate court judge, unschooled in research methodology, might order a family into treatment assuming that a program of proven effectiveness will change the family. The absent factor of willing acceptance could alter the outcome. The findings of Beal and Duckro's study (1977), which was reviewed in Chapter 2, could lead a judge to believe that any family ordered to take this program would have the same chance to be successfully diverted from the legal system as did the volunteer subject families. That judge might be very disappointed should he/she write the order for treatment and find that families did not change as expected. This disappointment--that the results of therapy do not match the expectations--frequently leads to disillusionment with the entire process of counseling. Researchers would do better to claim less, and be able to stand behind their claims.

Consistency of Analysis and Design

Also contributing to the inflated number of treatment programs improperly claiming treatment effectiveness was the practice of repeatedly using a univariate statistic to analyze many variables. The complexity of family interaction requires that many variables be examined in an attempt to understand behavior and behavior change. When analyzing these variables, a multivariate statistic is required. Such a statistic treats the many variables simultaneously, eliminating

the problem of very low confidence in resulting findings. Multi-variate statistics are easily applied to computer-analyzed data, and clinical researchers' continued use of repeated univariate analyses results in erroneous conclusions. Every treatment evaluation study reviewed in Chapter 2 claimed treatment effectiveness, but only five claims were supported by the results of the statistical analysis.

Cluster Patterns of Dependent Variables

Data derived from the application of McQuitty's (1957) linkage analysis to Pearson correlations between the dependent variables yielded three clusters of variables. Cluster 1 was made up of the three Family Problem Behavior (FPB) rating scales (Average Parent, Teen, and Average Family). Cluster 2 comprised the three Family Interaction Task (FIT) scales (Closure, Disruption, and Peculiar) and the Tennessee Self-Concept Scale (TSCS)--Self-Criticism score. Cluster 3 was made up of the TSCS--Total Positive score and the FPB--Change score. All of the largest correlations between measures were positive, with the exception of the correlation between the TSCS--Self-Criticism scale and the FIT--Closure scale. It has been well established that an individual's scores on a number of variables obtained by a particular method of measurement are affected by his/her response to the characteristics of that method as well as by his/her place on the continuum the test intends to measure (Magnusson, 1967). Because of this dual determination of scores, the cluster patterns obtained on the dependent variables might be a result of underlying

differences in the constructs measured by each test or of differences in the method of testing.

Because the highest correlations generally existed between different scales of the same instrument, it is likely that the greatest amount of variance on each scale was attributable to measurement method. However, data supported the attribution of some of the variance on each scale to the construct measured.

The data from the Family Problem Behavior scale supported the notion that the greatest amount of variance could be attributed to the method of measurement. The FPB yielded four scores; three of the scores were derived by means of individually completed questionnaires, and the fourth resulted from a family consensus arrived at through family discussion. The three questionnaire scores clustered together, but the consensus score (FPB--Change score) was clustered with the TSCS--Total Positive scale.

The TSCS--Total Positive scale was correlated $-.2196$ with the FPB--Teen score. This was the second highest correlation for the TSCS--Total Positive scale, its highest correlation being with the FPB--Change score ($r = .4797$). The FPB--Teen score was an estimate of adolescent dissatisfaction with the current family situation relative to the presenting problem. The TSCS--Total Positive scale was a measure of self-esteem, and included (according to the TSCS manual) items that measured how the adolescent viewed and evaluated his/her behavior in the context of the family. If the constructs measured by the two tests were related, as they seemed to be, the scales measuring them ought to have been more highly correlated than they

were with scales measuring entirely different constructs. In part, the data bore this out, since TSCS--Total Positive scale had its second highest correlation with the FPB--Teen score ($r = -.2196$). This last correlation was not higher than those discovered between the various questionnaire scales of the FPB (r ranging from .5367 to .8390), so although some of the variance can be attributed to construct similarity, the majority of the variance must be attributed to the characteristic features of the measurement method.

Another finding that supported the conclusion that method of measurement accounts for more variance than construct measured was the correlation between the TSCS--Self-Criticism scale and the FIT--Closure scale. The TSCS--Self-Criticism scale purports to measure the degree to which the adolescent is willing to be critical of him/herself. The FIT--Closure scale measures the degree to which family members interfere with each other's opportunity to bring ideas to successful closure. Included as closure problems are disqualifications of self or other (disparaging criticism). The constructs purportedly measured by these two methods seem quite similar and ought to be positively related. The relationship found was confusing in that the correlation between the TSCS--Self-Criticism scale and the FIT--Closure scale was the highest correlation for the TSCS--Self-Criticism scale, but it was in the direction opposite to that expected ($r = -.3738$). Clearly, there is some relationship between the constructs measured by these two scales, but the relationship is different than hypothesized. Adding to the confusion was the predicted higher correlation between the Closure and Disruption scales of the

FIT, and the lower correlation between the FIT Closure scale and Peculiar scale, which was not predicted. The FIT scales did seem to cluster, but not as tightly as the FPB questionnaire scales.

In conclusion, the method of measurement seemed to account for the largest amount of the variance between scores, but the construct measured did account for some portion of the variance.

No Difference--Why?

The most obvious possible reason for the failure to find difference among the three experimental groups following treatment is that the treatment programs were not effective in producing desired changes.

Other family treatment programs have demonstrated their ability to behaviorally change families. The program evaluated by Parsons and Alexander (1973) as well as the program evaluated by Beal and Duckro (1977) worked with each family separately, in contrast to the partial group treatment program evaluated in this study. Perhaps families are less effectively treated in groups. Stanley (1978) treated families in groups and demonstrated attitudinal change as a result of treatment. The program evaluated by Stanley required 10 weekly sessions, each 2.5 hours long. Additionally, the program required that each family hold and audiotape seven 1-hour-long family meetings (without group leaders) related to topics discussed during group meetings. In total, each family received 35 hours of a structured program, in contrast to the maximum of 20 hours and minimum of 12 hours offered by the programs evaluated in this study. Perhaps more time is needed to change families than was offered during the treatment programs evaluated in this study.

Subjects were randomly sorted into groups using referral source as a blocking variable. The blocking variable was not considered in the analysis of the data, and the analysis may be more conservative than the α level indicated ($p = .05$ per test). To estimate the extent of the error, the between-block differences on one randomly selected dependent variable were examined. No difference could be demonstrated, using Chi Square, between the different referral groups on the variable Total P of the Tennessee Self-Concept Scale. It is likely that the blocking variable contributed nothing to the analysis of the data, and hence any tendency toward conservatism was very small or nonexistent.

Another possible explanation for the findings is that the instruments used to measure change were not sensitive enough to the feelings and behaviors assessed to pick up any change that might have occurred. The exploration into possible sources of variance among subject scores across dependent variables led to the conclusion that the largest amount of the variance on most scores was attributable to the method of measurement, with a lesser amount of the variance attributable to real difference on the concepts measured. It is this real difference portion of the variance that will assess any meaningful change as a result of treatment. If this portion of the variance was relatively small, the instruments may have been proportionately insensitive to any change.

Related to the sensitivity of the instruments is the issue of sample size: Perhaps 10 families per experimental group was too

small a number for the sensitivity level of the measurement instruments.

A final possible reason for the failure to find differences between the experimental groups may be the analysis used. A series of t tests would have allowed the use of directional hypothesis, which would have increased the power of the analysis. With attention to limiting the experimentwise error rate by setting $\alpha = .01$ for each of the nine tests of the dependent variables, the use of a univariate statistic is acceptable. Another method of analyzing the data could have been the use of gain scores rather than the Analysis of Covariance. More degrees of freedom would have been allowed using this method, possibly resulting in positive findings. However, considering the small differences between groups on the posttest, it is extremely unlikely that any significant difference exists between them. Statistical analyses can only uncover what is already there, not create it.

Implications for Future Research

There is a definite need for research into the effectiveness of family treatment programs. If an evaluation study is designed to evaluate behavior objectively, using a statistical analysis to test the truth about (or significance of) an observed change, then the project should include both conventions of acceptable experimental design and statistical analyses appropriate to the design. Any compromises made relating to design ought to be clearly delineated, along with their associated impact on the results. Such rigorous

studies are needed. Also needed are evaluations based on the subjective experience of the participants. As Dean and Whyte (1958) indicated, the objective "truthfulness" of a person's statement is not the only important issue; also important is what a person's statement reveals about his/her perceived reality. To alter a person's perception of reality is to change that person. This study attempted to address both observed behavior and subjective experience.

Given the tremendous time investment required for treatment of families, evaluation of family treatment programs should be kept as simple as possible while still remaining meaningful. This might be accomplished by limiting the number of experimental groups to two: one treatment group and one control group. In this way more families would be in each group, thereby increasing the chance of recognizing any real difference.

A second way to increase the chance of recognizing any real difference resulting from treatment is to limit treatment goals to a few goals that are readily defined and reliably measured.

A final suggestion is that researchers interpret their findings in a way consistent with the limits of their design and analysis. Selection as an independent variable, behavior change inferred from attitude questionnaires, and the effects of a low level of confidence in results due to repeated use of univariate statistics all require discussion of how they affect interpretation of results.

Related to the need for treatment evaluation research is the need for further research into the nature of existing family

interaction measures and the development of newer, more valid, and more reliable measures. Most current family interaction measures were developed by clinicians, based on constructs emerging from various theoretical perspectives. Most measures have been validated by the developers with selected narrow populations, usually including families with a schizophrenic member. Family measures normed on larger populations, and on populations with other than families having schizophrenia and nonstatus delinquency diagnoses, are needed.

Observations on Clinical Effectiveness Research

Many summaries of research evaluating the effectiveness of clinical intervention report significant findings that are not supported by the data. In effect, researchers were misrepresenting their data. As professionals, clinical researchers cannot continue to tolerate the use of such unacceptable research strategy. Like the previously discussed issue of selection-by-treatment interaction, the use of inappropriate analytical tools often leads to false claims of effectiveness and increased public mistrust of the counseling process.

APPENDICES

APPENDIX A

PROBLEM BEHAVIOR RATING FORM

APPENDIX A

PROBLEM BEHAVIOR RATING FROM

1. How disruptive is this problem in your family?

1	2	3	4	5
not at all	a little bit	moderately	quite a bit	extremely much

2. How much does this problem interfere with your enjoyment of the family?

1	2	3	4	5
not at all	a little bit	moderately	quite a bit	extremely much

3. How strongly do you wish that something would be done about this problem?

1	2	3	4	5
not at all	a little bit	moderately	quite a bit	extremely much

4. How serious is this problem in your family?

1	2	3	4	5
not at all	a little bit	moderately	quite a bit	extremely much

APPENDIX B

DRUG AND DELINQUENT BEHAVIOR QUESTIONNAIRE

APPENDIX B

DRUG AND DELINQUENT BEHAVIOR QUESTIONNAIRE

Directions

- I. Across the top of the next section of next page you will see listed several different kinds of drugs. Down the side of the page are questions. Each question goes with each drug. If the answer to the question is yes, put a check in the square. If the answer is no, or does not apply to you, leave the square blank.

Example:

	Beer	Wine	Liquor	Uppers	Downers	Marijuana	LSD, PCP (THC)	Heroin	Inhalents
1. Have you ever used		✓		✓		✓			

This question is really eight questions, and this person has at least once used wine, uppers, and marijuana. He has never used beer, liquor, uppers, downers, hallucinogens, heroin, or inhalents.

If you have any questions about this form, please ask.

Uppers = amphetamines, methamphetamines, speed, benzedrine, dexedrine, and methedrine

Downers = sedatives, barbiturates, seconal, and phenobarbital

Inhalents = Pam, glue, deodorants, hair spray, etc.

- II. This part deals with your non-drug behavior. Just answer as well as you can, after thinking about what you have done this very last week.

1. Have you ever used this drug?
2. Used it in the last 6 months?
3. Used it in the last month?
4. Use it once a week?
5. Use it 2-3 times a week?
6. Use it every day?
7. Do you use 1-2 each time?
8. Do you use 3-4 each time?
9. Do you use 5 or more each time?
10. Why do you use this drug? (Pick only one answer for each drug you use.)
 - a. To relieve tension, pressure or nervousness.
 - b. To join in a group, or most of my friends use it.
 - c. To get rid of a down or to forget problems.
 - d. For fun, enjoyment or celebration.
 - e. To feel sophisticated, modern or adult
 - f. To understand myself, to expand my mind.

[illegible]

11. Where do you get this drug from? (Choose only 1.)
 - a. parents
 - b. buy it
 - c. steal it
 - d. deal it
 - e. other
12. If you buy it, where do you get the money from? (Choose only 1.)
 - a. parents
 - b. work
 - c. steal it
 - d. other
13. How high do you usually get?
 - a. not high at all
 - b. a little high
 - c. smashed
 - d. ozone

Beer			
Wine			
Liquor			
Uppers			
Downers			
Marijuana			
LSD, PCP (THC)			
Heroin			
Inhalents			

PART II

1. During the past week, have you shoplifted anything? No___ Yes___
If yes, how many articles?_____
What do you guess was their total value? \$ _____
2. During the past month, have you shoplifted anything? No___ Yes___
If yes, how many articles?_____
What do you guess was their total value? \$ _____
3. Have you in other ways stolen anything during this last week? No___ Yes___
If yes, what were they?_____
What do you guess was their total value? \$ _____
4. Have you in other ways stolen anything during this last month? No___ Yes___
If yes, what were they?_____
What do you guess was their total value? \$ _____
5. Have you broken into any buildings this last week? No___ Yes___
If yes, how many?_____
6. Have you broken into any buildings this last month? No___ Yes___
If yes, how many?_____
7. Have you run away from home during this last month? No___ Yes___
If yes, how many times?_____
If you have run away from home, how many times in your life have you done so?_____

8. During this last week have you stayed out later than you were allowed to?

No____ Yes____

If yes, how many times?_____

Usually, how late were you?_____

9. Have you gotten into any really big verbal hassles with your parents this last week?

No____ Yes____

If yes, about how many times?_____

10. Have you gotten into any physical fights this last week?

No____ Yes____

If yes, how many?_____

With whom?_____
(Ex. friends, brother, neighbor, etc.)

The following questionnaire form has recorded on it the scale--drug use (D), status delinquent behavior (S) and non-status delinquent behavior (N)--that each question or answer belongs to. Additionally, the number of points given for each response is indicated. To score the questionnaire, the sum of the number of points earned for each question is placed in the correct column to the right of the form. A total for each page is at the page bottom, and grand totals are indicated at the upper left corner of page 1. These scoring columns, point totals, and summary boxes do not appear on the questionnaire when given to each teenage subject. The scoring data are added later, during the scoring process.

D	S	N
---	---	---

For Scoring Only

- D 1. Have you ever used this drug?
- D 2. Used it in the last 6 months?
- D 3. Used it in the last month?
- D 4. Use it once a week?
- D 5. Use it 2-3 times a week?
- D 6. Use it every day?
- D 7. Do you use 1-2 each time?
- D 8. Do you use 3-4 each time?
- D 9. Do you use 5 or more each time?
- D10. Why do you use this drug? (Pick only one answer for each drug you use.)
- To relieve tension, pressure or nervousness.
 - To join in a group, or most of my friends use it.
 - To get rid of a down or to forget problems.
 - For fun, enjoyment or celebration.
 - To feel sophisticated modern or adult.
 - To understand myself, to expand my mind.

	Beer	Wine	Liquor	Uppers	Downers	Marijuana	LSD, PCP, (THC)	Heroin	Inhalants	For Scoring Only		
										D	S	N
D 1. Have you ever used this drug?	1	1	2	3	3	1	3	3	3			
D 2. Used it in the last 6 months?	1	1	2	3	3	1	3	3	3			
D 3. Used it in the last month?	1	1	2	3	3	1	3	3	3			
D 4. Use it once a week?	1	1	2	3	3	1	3	3	3			
D 5. Use it 2-3 times a week?	1	1	2	3	3	1	3	3	3			
D 6. Use it every day?	1	1	2	3	3	1	3	3	3			
D 7. Do you use 1-2 each time?	1	1	1	1	1	1	1	1	1			
D 8. Do you use 3-4 each time?	3	3	3	3	3	3	3	3	3			
D 9. Do you use 5 or more each time?	5	5	5	5	5	5	5	5	5			
D10. Why do you use this drug? (Pick only one answer for each drug you use.)												
a. To relieve tension, pressure or nervousness.			5 points each									
b. To join in a group, or most of my friends use it.			1 point each									
c. To get rid of a down or to forget problems.			5 points each									
d. For fun, enjoyment or celebration.			1 point each									
e. To feel sophisticated modern or adult.			3 points each									
f. To understand myself, to expand my mind.			3 points each									

Score only for drugs used during last month.

	Beer	Wine	Liquor	Uppers	Downers	Marijuana	LSD, PCP, (THC)	Heroin	Inhalants	For Scoring Only
11. Where do you get this drug from? (Choose only 1.)										
S { a. parents	5 points each						Score only for drugs			
b. buy it	See #12						used during last month.			
N { c. steal it	10 points each									
d. deal it	10 points each									
S e. other	5 points each									
12. If you buy it, where do you get the money from? (Choose only 1.)										
S { a. parents	5 points each						Score only for drugs			
b. work	5 points each						marked as "b" on (11),			
N c. steal it	10 points each						and for drugs used			
S d. other	5 points each						during last month.			
D 13. How high do you usually get?										
a. not high at all	1 point each									
b. a little high	2 points each									
c. smashed	4 points each									
d. ozone	5 points each									

 Subtotal

PART II

S N

- N 1. During the past week, have you shoplifted anything? No 0 Yes
 If yes, how many articles? # given 0-10 = 1 pt
 10-30 = 3 pts
 What do you guess was their total value? \$ over 30 = 5 pts
- N 2. During the past month, have you shoplifted anything? No 0 Yes
 If yes, how many articles? # given 0-10 = 1 pt
 10-30 = 3 pts
 What do you guess was their total value? \$ over 30 = 5 pts
- N 3. Have you in other ways stolen anything during this last week? No 0 Yes 1
 If yes, what were they? 0-10 = 1 pt
 10-31 = 3 pts
 What do you guess was their total value? \$ over 30 = 5 pts
- N 4. Have you in other ways stolen anything during this last month? No 0 Yes 1
 If yes, what were they? 0-10 = 1 pt
 10-31 = 3 pts
 What do you guess was their total value? \$ over 30 = 5 pts
- N 5. Have you broken into any buildings this last week? No 0 Yes
 If yes, how many? # x 10
- N 6. Have you broken into any buildings this last month? No 0 Yes
 If yes, how many? # x 10
- S 7. Have you run away from home during this last month? No 0 Yes
 If yes, how many times? # x 10
 If you have run away from home, how many times in your life have you done so?

- | | | S | N |
|--|-----------------------------|--|---|
| S 8. During this last week have you stayed out later than you were allowed to? | No <u>0</u> Yes <u> </u> | <div style="border-top: 1px solid black; border-bottom: 1px solid black; height: 100px; margin: 0 auto; width: 10px;"></div> | |
| If yes, how many times? <u> </u> # | | | |
| < 1 hr = 1 | | | |
| Usually, how late were you? <u> </u> # | | | |
| > 1 hr = 2 | | | |
| S 9. Have you gotten into any really big verbal hassles with your parents this last week? | No <u>0</u> Yes <u> </u> | | |
| If yes, about how many times? <u> </u> # | | | |
| N 10. Have you gotten into any physical fights this last week? | No <u>0</u> Yes <u> </u> | | |
| If yes, how many? <u> </u> # x 5 | | | |
| With whom? <u> </u>
(Ex. friends, brother, neighbor, etc.) | | | |

Total

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