EVALUATION OF A COMMUNITY PROGRAM FOR THE PREVENTION OF CONDUCT PROBLEMS AMONG PRESCHOOL AGE SONS OF ALCOHOLIC FATHERS

By

Eugene Thomas Maguin

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ABSTRACT

EVALUATION OF A COMMUNITY PROGRAM FOR THE PREVENTION OF CONDUCT PROBLEMS AMONG PRESCHOOL AGE SONS OF ALCOHOLIC FATHERS

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This study reports an evaluation of a program to prevent the development of conduct problems in a group of three-to-six year old male children who are at high risk for such problems and the eventual development of alcoholism by virtue of their being the children of alcoholic fathers.

Under agreements with district courts in a four county mid-Michigan area, all men who had been convicted for drinking while impaired; 2) had a blood alcohol level of at least 12 mg per 100 ml when arrested; 3) were living in an intact relationship at initial contact; and 4) were the biological father of a three to six year old male child living in the home at initial contact, were asked to allow their name to be released to "a study of family health and child development."

Ninety-two families were recruited from the courts and 12 families who also met diagnostic criteria for alcoholism were identified through a community survey. Subjects were randomly assigned to one of two intervention formats, Mothers Only or Both Parents, or a control group.

The intervention protocol combined the Oregon Social Learning Center parent training model for treating conduct problems with a family component designed to address parent and marital issues. The intervention was offered only to intact families who remained intact.

Both parents provided data on the target child at pre-intervention, mid-treatment, termination, and six months post-termination assessments of negative behavior, prosocial behavior, affectionate behavior, and inhibited behavior.

Relative to the Control group, all families receiving the intervention reported 1) a significant decrease in overt negative behavior from pretest to termination followed by a significant increase during the followup period. 2) A significant increase in prosocial behavior from pretest to termination and no change during the followup period. 3) A significant increase in affectionate behavior from pretest to termination and no change during the followup period.

The Both Parents format did not show greater change than the Mother Only format for overt negative behavior and affectionate behavior, but did show a slight but consistent advantage over the Mother Only format for prosocial behavior.

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Introduction

The per capita consumption of alcohol in the United States has steadily increased since the end of Prohibition until it peaked in the early 1980's. Since that time, per capita consumption has been in decline. Beyond the hypothetical "average" or per capita person, there is a wide variation in drinking levels and consumption patterns. For instance, in a recent national survey (Hilton & Clark, 1987), 17% of males aged 23-29 years reported themselves to be abstainers, 30% of the males reported that they drank less than 17.5 drinks per month, 21% reported drinking between 17.5 and 44.9 drinks per month and 31% reported drinking 45 or more drinks per month.

While much is known about the impact of drinking on the drinker's physiological, psychological, and social functioning, far less is known about the impact of drinking (and especially heavy drinking) on the drinker's family. In particular, the impact of heavy paternal (and, secondarily, maternal) alcohol involvement on the development of young male children is still unclear. In a recent review, West and Prinz (1987) summarized a number of studies that examined the consequences of parental alcoholism on child psychopathology and dysfunctional behavior. Since their review frames the subject of this study it will be useful to

present their conclusions as a starting point.

West and Prinz (1987) reported that five of six studies reviewed found an association between parental alcoholism and children's conduct problems. Generally, children of alcoholic parents were reported by their parents to have significantly higher levels of conduct problems than did children of nonalcoholic parents. However, these findings are not unequivocal because they are largely based on parent rating data rather than from multiple data sources (i.e., teacher ratings and direct observation).

A positive relationship between child hyperactivity and parental alcoholism was found in six of seven studies. Better designed studies found that children of alcoholic parents were rated by others (staff persons or teachers) as having significantly higher levels of hyperactivity than did children of nonalcoholic parents. In one of the more carefully designed studies, Knop, Teasdale, Schulsinger, & Goodwin (1985) reported that sons of Danish alcoholic fathers were rated by teachers as significantly higher on impulsive-restless behaviors.

On the whole, West and Prinz (1987) concluded that the evidence suggests that children of alcoholic parents and, in particular, male children of alcoholic parents, are characterized by increased levels of both conduct problems and hyperactivity. While the area of developmental psychopathology has yet to resolve the thorny issue of distinguishing transient phenomena from "trait like"

phenomena, there is compelling evidence that children characterized by increased levels of externalizing behavior, and especially, extreme levels of aggression will most likely maintain those levels into adolescence and, possibly, into their adult years (e.g., Olweus, 1979).

Two questions present themselves. First, how does parental alcoholism lead to child conduct problems? In Chapter 2, a process model describing the development of child conduct problems will be developed from the literature. While this model will draw heavily on the social interactional approach used by Patterson and associates in their work, the model will also attempt to go beyond purely observable behavior and incorporate social-cognitive constructs literature and more biologically based constructs such as temperament. Using this model, intervention points will be identified and a currently used type of intervention model will be shown to address the intervention points identified in the process model.

The second question - the question with which this study is concerned - is whether significant interventions can be made with these children, while they are young, and while the undesired behavior is less entrenched and has fewer secondary gain characteristics or co-occurring negative sequelae. In essence, can a carefully designed, secondary prevention program have significant positive effects and benefits for the children and their families over the short term? Because such an approach has not been reported in the

literature, the use of such programs with already referred youth will be reviewed to evaluate their effectiveness.

In this work, a group of intact families with young male children and alcoholic fathers, who were not yet in treatment at the time of initial contact, were identified by way of outreach procedures focused in a four county, mid-Michigan area. The sons were at high risk for eventually becoming alcoholic and/or conduct disordered by way of their having an alcoholic father and by way of their gender while the parents were at high risk for sustained problem behavior. Using a randomized treatment design involving two treatment groups and a no treatment control, the Michigan State University Multiple Risk Outreach Program offered families a behavioral parent training program similar to that developed by Patterson and his associates at Oregon Social Learning Center, but also incorporating a family focused component (Zucker & Noll, 1987). In one treatment condition, the program is taught to both parents, while in the other, the program is taught to mothers only although it still retains a broader familial focus. This study evaluates the early stage effects of this intervention with the parents and with their male children.

The Development of Conduct Problems

This chapter presents a systematic examination of the variables that have been found to be associated with increased levels of conduct problems in male children aged 0 to 6 years. It focuses on 3 to 6 year olds because of its relevance for the intervention program that was carried out. Such a review is useful because it directs attention to factors that have been identified as precursors to conduct disorders in young children.

Externalizing Behavior and Conduct Problems

Since the current study is concerned with the treatment of conduct problems, it is useful to define the term "conduct disorder" and to differentiate it from other syndromes that also share externalizing characteristics. Conduct problems refer to a group of behaviors that are directed against others or their property, or which violate social and institutional rules. Examples of such behavior in the 3 to 6 age range would be verbal and physical aggression, destructiveness, cruelty, theft, noncompliance to parental requests, and tantrums. In an extensive review of child behavior classification studies, Achenbach and Edelbrock (1978) argued for a hierarchal model of child behavior. They proposed two broad factors, internalizing behavior (e.g., depression, anxiety, schizoid) and

externalizing behavior. In this study, externalizing behavior will be taken to be synonymous with conduct problems. Depending on child age and sex, the externalizing factor was composed of two or three specific factors. For boys in the age range of this study, Achenbach and Edelbrock found that conduct problem behavior was best described by two correlated factors, labeled Aggressive and Delinquent, for children and youth in the four to sixteen age span. The Aggressive factor is defined by behaviors such as cruelty, physical and verbal aggression, tantrums, and destructiveness. The Delinquent factor is defined by behaviors such as theft, vandalism, swearing, and fighting. Achenbach (1986) has subsequently found evidence for the Aggressive factor in children of two and three years of age.

A Social Interactional Perspective

This review will apply a social interactional perspective to the development of conduct problems. As described by Patterson (1986) a social interactional approach focuses on the ongoing mutual interdependencies (or interactional structures) between the behavioral response or trait of interest expressed by an individual subject, and the reactions to that behavior by others in the social environment.

Applied to the current study, a social interactional perspective implies a focus on the interactions between children and their parents. Interactions between children, their peers, and siblings are also considered as they are an

issue requiring parental intervention (e.g., fighting vs friendly play).

At their core, the function of parent-child interactions should be to guide children along a normative developmental course by facilitating the development of the emotional and cognitive frameworks necessary for eventual self-regulation of behavior through supporting desirable, age appropriate behavior, and suppressing undesirable or age inappropriate behavior. Thus, parents face three tasks: 1) to notice and encourage desirable behaviors and to notice and discourage undesirable behaviors; 2) to help children acquire desirable but not yet existing behaviors; and 3) to provide a "relational frame" wherein children and parents can learn about self and other. In this review, it is my contention that repeated failure by the parents to successfully engage in these tasks leads to enduring conduct problems in children.

Child Characteristics

The child's contribution to the development of conduct problems has, until fairly recently, been neglected. Two recent areas of investigation are temperament and social cognitive processing of stimuli.

Temperament. Although usually thought of as a variable of infants and toddlers, temperament was originally hypothesized to be valid across the life span. At its core, temperament refers to a set of "characteristic phenomena of a emotional nature . . . [which] are largely hereditary in

origin." (Allport, 1937, p. 54). Because temperament is viewed as largely genetically determined, it is also viewed as having an organizing effect on the person's interactions with the environment. Thus, temperament should exert effects which would be visible early in life and continue throughout the lifespan. While there is currently substantial controversy among temperament researchers regarding theoretical issues of origin, there is general agreement on the dimensions of temperament (Campos, Barrett, Lamb, Goldsmith, & Stenberg, 1983) and on instruments useful for its assessment (see Hubert, Wachs, Peters-Martin, & Gandour, 1982; Campos et al., 1983)

The relationship between temperament and child behavior problems among two year old male children has been the subject of a research program by Earls and associates (Earls & Jung, 1988; Barron & Earls, 1984; Earls, 1981). Temperament was measured by means of a parent completed questionnaire adapted from Thomas and Chess (1977) and scored to yield scores for each of Thomas and Chess' nine temperament dimensions. In this work, behavior problems were defined as including both internalizing and externalizing behavior. Earls and associates found that three temperament dimensions, activity level, intensity, and adaptability, assessed at two years of age predicted ($r = .45, .36$, and $-.40$, respectively) behavior problems at age three. These same three dimensions, assessed at age three years, were also found to correlate ($r = .49, .66$, and $-.58$,

respectively) with behavior problems at age three.

Although the definition of child behavior problems in the Earls' work as including both internalizing and externalizing problems may obscure the relationship between temperament dimensions and conduct problems somewhat, the data do lend support to a role for temperament. These studies show that even at a very early age parents of such children are presented with the task of suppressing high levels of coercive behavior.

The contribution of social cognitive processes to aggression has been explored in a series of studies by Dodge and associates (Dodge, 1980; Dodge & Frame, 1982; Dodge, Murphy & Buschbaum, 1984; Dodge & Somberg, 1987). In these studies with elementary school aged children, the investigators found that aggressive boys are more likely to attribute hostile intent to an ambiguous situation when they are the target but not when a peer is the target. While all boys are more likely to respond aggressively following an attribution of hostile intent, aggressive boys are more often aggressive because their attributional bias presents them with more situations that appear hostile. While all boys selectively recall aggressive rather than benevolent cues, peers of aggressive boys are more likely to notice aggressive cues and overlook benevolent cues from aggressive boys than from nonaggressive boys. In social interaction, peers of aggressive boys expect an aggressive response from aggressive boys and this expectation leads peers to act in

an aggressive manner against the aggressive boy. The consequence of this process is that aggressive children find themselves caught in a cycle of increased aggressiveness from other children, which confirms their attributions and to which they respond with an ever higher level of aggression.

Recently, Gouze (1987) extended certain of Dodge et al.'s findings to preschool age boys. In this work Gouze found that aggressive boys gave more attention to aggressive interactions (a videotaped puppet show) and were more easily distracted by an aggressive cartoon than were less aggressive boys.

The merging of paradigms using temperament measures and laboratory developed social cognitive processing measures in conjunction with behavioral observation data would seem to be an especially exciting prospect. Speculating for a moment, these data suggest that the cognitive processing styles of aggressive boys have been developed out of their interactions with others. During the preschool years, the principal source of such interactions would be in environments nominally under parental supervision. Temperamental dimensions such as activity level, adaptability, or intensity would be expected to mediate between cognitive-emotional representation and expressive behavior and the processing of incoming stimuli. For instance, children who score low on adaptability or high on intensity or activity level would probably stand a better

chance of eliciting negative responses, both intended and unintended, from others. These responses might then form the beginnings of bias in recall.

Parent-Child Interaction

Much of the discussion which follows is derived from Patterson (1982) or from colleagues working within the observational social learning paradigm. In this paradigm, time is divided into six second blocks and observable behavior occurring between a target family member and any other family member in that time block is coded into categories using a 29 category description of all possible behaviors. From a priori assumptions about the aversiveness of the behavior categories (subsequently verified by Jones, Reid & Patterson, 1975), the set of 29 categories were reduced to a set of 14 coercive behaviors and a set of 15 prosocial behaviors. The coercive behavior set, termed the TAB score (Total Aversive Behavior) is the summary variable on which the following development is based.

Patterson (1982) identified four patterns of interaction that were especially salient in differentiating between aggressive and normal children. The patterns are crossover, counterattack, acceleration, and continuance. Crossover refers to the probability that the child will respond coercively given that the other person has acted in a positive manner. Crossover may be thought of as the opening move in a coercive exchange. Counterattack refers to the probability that a coercive response will be made to the

preceding coercive response of the first party. This may be thought of as the opponent's first punch and, of course, serves to keep the fight going. Punishment acceleration refers to the probability that a punishing stimulus will not suppress (or, conversely, will "accelerate") previous coercive behavior. In essence, this index is a measure of the effectiveness of punishment for the target person. Finally, continuance refers to the probability that the originator of the fight will respond coercively again, irrespective of his/her opponent's intervening response.

Coercive exchanges can get started by either the target child or by his family members. Patterson's (1982) data show that aggressive children are more likely to have all family members (i.e., mother, father, and sibs) crossover against them than are control children. An aggressive child is no more likely to crossover against his sibs or his father than is a nonaggressive child, but is much more likely to crossover against his mother than is a nonaggressive child.

Given that a family member has crossed over against the target child, an aggressive child is more likely than his nonaggressive counterpart to counterattack his mother, father, and siblings. However, when the target child has crossed over against a family member, mothers in high risk families are more likely to counterattack than are mothers in control families. There is no difference between high risk and control families in the counterattack probabilities for other family members given a target child crossover.

The third step in the process is punishment acceleration or, simply, acceleration. Given that a child has crossed over and a family member has counterattacked, aggressive children are more likely to accelerate against their mothers, fathers, and siblings than are nonaggressive children. The contrasting sequence, family member accelerates given that the family member crossed over and the target child countered, is no more likely for mothers, fathers, or sibs in high risk families than for mothers, fathers, or sibs in control families. If the counterattack is thought of as punishment, then acceleration measures how successful the punishment was. The implication of these data is that aggressive children are not very responsive to the punishments used by their parents or siblings.

The final step in the process is continuance which is the probability of a second coercive response given an initial coercive response regardless of the opponent's intervening response. For this aspect of an irritable exchange, the data show that aggressive children are significantly more likely to continue an exchange with all members of their families and that their mothers and fathers are more likely to continue an exchange with them. The willingness to continue an exchange is also reflected in the average length of coercive exchanges. Aggressive children have been found to have significantly longer exchanges than nonaggressive children (Patterson, 1982).

These indexes can be organized into what Patterson (1982) refers to as the irritable exchange. This is a process which combines the above response probabilities into a whole and takes account of both the intersubject and intrasubject components. Crossover, counterattack, and punishment acceleration represent intersubject components while continuance represents an intrasubject component. The irritable exchange is the medium through which the respondents socialize and train each other to fight. In this exchange, the aggressive child brings an additional component. This component is a rapid escalation of the intensity of the exchange. As Patterson (1982) reports, the aggressive child escalates an irritable exchange significantly more quickly than does his parents or siblings. Thus, the aggressive child's opponent is immediately placed in a negative reinforcement situation where the shorter term gain is an escape from a brutal attack and the longer term lesson is to yield to the attack.

There are two types of irritable exchanges: those initiated by the target child and those initiated by his siblings and parents. Exchanges initiated by the target child against parents or siblings present parents with discipline situations. These data show that parents are ineffective at discipline. These parents tend to use low level verbal nagging and threats interspersed with explosions of high intensity physical discipline. In subsequent work, Patterson and Chamberlain (1988) have

reported the development of a model which incorporates a discipline construct, a coercion construct measured by startup probabilities and conflict duration, and a antisocial behavior construct measured by parent, child, teacher, and peer report. The resulting model shows path coefficients of .64 from discipline to antisocial behavior and bidirectional (reciprocal causation) path coefficients of .20 from discipline to coercion and .33 from coercion to discipline.

Irritable exchanges started by parents or siblings seem to present a different sort of problem than those started by the target child in that desirable and prosocial behavior on the part of the target child is responded as if it were undesirable. How can this be understood? Perhaps family members of aggressive children are acting like the peers of the aggressive children studied by Dodge and associates. That is, both parents and siblings expect an aggressive response from the target child. This expectation then leads them to act aggressively against target child.

As Reid (1987) points out, coercive exchanges in even the most coercive of families occupy only about 5% to 10% of the family's time together. With few exceptions, the remaining 90% to 95% of the time together has been ignored. In part, the focus on coercive behavior reflects a desire to understand the referral behavior. The desire is grounded in clinical experience as Patterson (1982) has observed that efforts to decrease coercive behavior by increasing

prosocial behavior have been met with failure. Thus, the need for a separate understanding of coercive behavior was indicated. However, recent work by Gardner (1987) has suggested that prosocial interaction is also impaired in families with aggressive children.

In an observational study of conduct problem and control preschool age children conducted in England, Gardner (1987) reported that significant differences existed across categories of activities. Beyond the expected differences in time spent in conflict situations with mothers and sibs, conduct problem children were observed to spend less time involved in joint activities or joint conversations with their mothers but about equal amounts of time in solitary activities. Thus, decreased prosocial activity came at the expense of increased conflictual activity. Within the solitary activities supercategory, Gardner found that conduct problem children spent less time in coherent play and more time watching TV or doing "nothing".

From Gardner's (1987) work several interesting questions emerge. First, what are the functional meanings of the differences in the categories of solitary activity? Could it be that the increased conflict leaves the child in such a negatively aroused state that the increased TV watching and doing nothing times reflect their attempts to regain equilibrium but which are bought at the price of reduced coherent play? Second, could the decreased amount of coherent play serve to impoverish prosocial activities and

enrich the conflictual time?

Although not spoken of in these studies, I should also like to speculate about the role of affect. If parent-child relationships are metaphorically similar to other relationships, then the rewards of being a parent to an aggressive child are very lean in positives and very rich in negatives. Under such circumstances, the observation that parents of conduct disordered children do not like their children (Reid, 1987) is quite ordinary and expected.

The richly detailed studies of coercive processes and the poorly detailed data on prosocial interaction and solitary activities present a distressingly incomplete picture. The coercion theory data implicate all parties. Clearly, the parents and the target child seem to lack prosocial skills to gracefully enter each other's ongoing experience or to gracefully deflect unwanted attempts to enter their experience. The prosocial play contexts where these skills might be learned and practiced are decreased. Given a conflict, the parents, as Patterson (1982) notes, seem to lack the will to contingently punish their child. However, against a rapid escalation in intensity, this must be acknowledged to be a daunting task. Speculatively, one might wonder if the decreased coherent play and increased TV and doing nothing time noted by Gardener (1987) do not, themselves, serve as crossover points for conflict beginnings and impoverish joint play because the child has relatively little to bring to the parent.

The weakness of these data just presented is that they are cross-sectional. Thus, to report that both mothers and aggressive children crossover or counterattack each other at rates above that in families without aggressive children is interesting and a good first step, but leaves the question of who leads who unanswered. I think that three possibilities can be enumerated and a case built for each. At one extreme, a child with a very difficult termperament (i.e., high proportion of negative affect, high intensity of responses, and a low adaptibility level) could probably erode even the most resilient and resourceful set of parents. At the other extreme, a very neglectful and damaged set of parents could probably produce an angry and aggressive child. Between these two extremes is the middle ground where the lead changes back and forth as the child matures.

Parent Characteristics

Parent characteristics refer to a large set of variables which have two pathways of action. The first pathway is purely biological, through the union of each parent's genetic material in their offspring. In this review, I will only touch on this pathway, deferring a discussion of this path to others (e.g., Cloninger & Gottesman, 1987; Dinwiddie & Cloninger, 1989; Marshall & Murray, 1989; Mednick & Christiansen, 1977; Mednick, Pollack, Volavka, & Gabrielli, 1982). The pathway that I will focus on is the nonbiological. This latter pathway, actually a multiplicity

of pathways and interactions, refers to the complex of cognitive and affective intrapersonal characteristics, parenting behaviors, beliefs and attitudes, and demographic markers that have been examined. Lastly, although there is a likely probability of interactions between the biological and nonbiological pathways, I will not focus on these interactions here.

Utilizing a variety of research designs and/or sophisticated quantitative procedures, researchers have attempted to identify variables that demonstrate heritable effects. The data from this work (e.g., Cloninger & Gottesman, 1987; Dinwiddie & Cloninger, 1989; Marshall & Murray, 1989; Mednick & Christiansen, 1977; Mednick et al., 1982) indicate genetic effects for broad band characteristics of adult criminality and adult alcoholism. Data for narrower band characteristics such as temperament have only recently being reported (e.g., Plomin & DeFries, 1985) for normal samples. Studies that link parental alcoholism with narrow band characteristics such as temperament, hyperactivity, or conduct problems in the offspring have yet to be undertaken or reported.

The second broad pathway encompasses the interwoven stream of the psychological and social characteristics of the parents' lives. The broadest of these characteristics are educational attainment, occupational status, and income. These variables' relationship to conduct problems, antisocial behavior, or aggression have been the subject of

a number of studies. There is some variability of results for cross-sectional data. Achenbach (1978) found significant associations between lower SES and the narrow band factors Aggressive and Delinquent. In a large study of four to sixteen year old children, Achenbach and Edelbrock (1981) found that items from the Aggressive or Delinquent factors were more likely to be endorsed by lower SES respondents. However, contrary results were noted by Lefkowitz, Eron, Walder and Huesmann (1977). In their study, aggression measured by peer nomination and parent report was correlated with higher SES. Although the results are discrepant in sign, they are similar in that SES type measures account for a very small proportion of variance - usually less than three percent.

The results from longitudinal studies generally show the same pattern as do the cross-sectional studies regarding the effect of SES. In a meta-analytic review of studies which tracked children or early adolescents over intervals ranging from six to twelve years, Loeber and Dishion (1983) found significant improvements over chance prediction of delinquency (as measured by self report or police record) from measures of occupational class, social class, or socioeconomic status (SES). However, Lefkowitz, Eron, Walder and Huesmann, 1977 found no significant associations between SES and peer, parent, and self report measures of aggression over a ten year span. Again, the data suggest that lower SES has a quite small contribution to conduct

problems and aggression.

SES is best conceptualized as a global marker variable in that it represents the convergence of many variables operating at different levels. Of those variables which covary with SES and, thus, give it its specific meaning, two sets of variables have likely been quite stable. These are crises and family resources and parental psychopathology.

Parental psychopathology may also be conceptualized as a marker variable for two effects. The first effect is the transmission of the genetic components of the pathology to the child. The second effect is differences or shifts in the rearing environments of the child. As used here, the rearing environment is the physical and social world outside the child in which he is embedded and functions. Until birth, this environment is defined by the mother's womb. Afterwards and until school entry, this environment is principally defined by his parent's or caretaker's interactions with him and the physical space in which he lives. More specifically, parental psychopathology is hypothesized to mark general shifts or differences in the parent's behavior toward the child and/or other persons in the environment and in the parent's cognitive and affective processing of stimuli that precedes their behavior. In addition, it might be expected that since a parent models relationships with self, peers, and society, significant "thematic" effects might be associated with parental pathology (e.g., an antisocial parent models for his or her child how to transact business

with the world in an antisocial manner).

Although effects due to genetics and environment have been described, these effects will not be separated in the review that follows because the sophistication of the field is such that required types of studies have not yet been conducted.

Increasing pathology may well exert both general and specific effects. That is, increasing pathology, regardless of type, may be associated with general or global effects (i.e., either genetic, environmental, or both) and specific pathology may be associated with specific effects. Thus, the most global level of the parental pathology hypothesis is that an increasing severity of parental pathology is associated with increased child problems. Answering this question is made difficult by the fact that extreme and severe expressions of pathology are often marked by separation of the parent from the family - to death, to prison, to a psychiatric facility, or as a result of divorce. Thus, pathology effects are confounded by physical loss of parent effects. Data relevant to this question have not been reported.

The typical form of the parental pathology hypothesis is to ask whether a particular type of pathology is associated with conduct problems in the offspring. Two of the most commonly examined types of pathology have been alcoholism and antisocial behavior. Several studies in recent years have examined the parental alcoholism-conduct problem

relationship (Fine, Yudin, Holmes & Heinemann, 1976; Knop, Teasdale, Schulsinger & Goodwin, 1985; Merikangas, Wissman, Prusoff, Pauls & Leckan, 1985; Rydelius, 1981; Steinhausen, Gobel & Nestler, 1984). Three of the studies are European (Knop et al. - Denmark; Steinhausen et al. - Germany; and Rydelius - Sweden) and are, therefore, open to concerns about generalization to the United States. Be that as it may, these three studies along with the two US based studies are also the best available pertaining to this question.

The study by Rydelius (1981) used data from the Swedish national registers for social welfare and criminal proceedings to compare the 20 year developmental outcomes for the offspring of alcoholic fathers (181 boys and 176 girls) and the matched offspring of. At the start of the study, the children ranged in age from four to twelve years. Two results emerged from this study that pertain to the present work. First, male offspring of alcoholic fathers were found to be more frequently registered with the Child Welfare Board. The most common cause of registration -- regardless of whether the father was alcoholic or not -- was antisocial behavior. While sons of alcoholic fathers were more likely than sons of control fathers to be registered for antisocial behavior, the difference was not significant. Second, sons of alcoholic fathers were significantly more likely to have committed a criminal offense and to have committed the first offense at an earlier age than sons of control fathers.

The study by Knop et al. (1985) compared sons of alcoholic fathers (N = 95) with matched sons of nonalcoholic fathers (N = 49) drawn from the same birth cohort. Using retrospective ratings by a teacher who had known a child for several years, Knop et al. found that the sons of alcoholic fathers were rated as having been more impulsive-restless but not more violent than sons of control fathers. The final European study, by Steinhausen et al. (1984) compared male and female offspring of alcoholic parents (either father, mother, or both parents) aged one to seventeen with a matched group of children from control parents. The two groups were statistically equal to each other with respect to both age and sex distribution of the children. Using parent ratings of child conduct disorder and hyperactivity, the offspring of alcoholic parents were found to be significantly higher on both measures than were the offspring of control parents.

Fine et al. (1976) compared male and female offspring (N = 24) of alcoholic parents (either father, mother, or both parents) to a matched group of children (N = 24) from parents with a psychiatric diagnosis other than alcoholism and to a group of children (N = 100) from normal (i.e., no psychiatric diagnosis) parents. The origins of the group of children of normal parents were not described. This study is unique because it offers a test of both general pathology and specific pathology effects. On the basis of maternal report on a interviewer administered rating scale, some

tentative support for both general pathology effects and specific pathology effects was observed. The offspring of both alcoholic and psychiatric but nonalcoholic parents were more aggressive, more impulsive in ideation, unethical in conduct, and less able to delay gratification than were the offspring of control parents. In addition, the offspring of alcoholic parents were more aggressive than the offspring of psychiatric but nonalcoholic parents.

The final study, Merikangas et al., compared offspring of parents where either or both parents had received a diagnosis of depression alone (N = 93), primary depression and secondary alcoholism (N = 14), or no diagnosis (N = 87). The offspring groups ranged in age from six to seventeen years and included both males and females. The parents and other first degree relatives of the child were interviewed about the target offspring's behavior and this information was used by a psychiatrist to establish a diagnosis for the target child. The results showed that a conduct disorder diagnosis or a major depression diagnosis for the offspring was significantly more likely if the parent had received a diagnosis. However, the results also showed that offspring whose parent(s) had received a secondary alcoholism diagnosis in addition to a major depression diagnosis were significantly more likely to receive a conduct disorder diagnosis but not a major depression diagnosis than those offspring whose parent(s) had received only a major depression diagnosis.

Quite a large number of studies have examined the relationship between parental antisocial or criminal behavior and offspring conduct problems, antisociality, or criminal behavior (see Loeber & Dishon, 1983; Loeber & Stouthamer-Loeber, 1986 for reviews). Of particular interest is the meta analysis conducted by Loeber and Stouthamer-Loeber (1986) of the relationships between parental behavior and offspring delinquency. Their results showed that parental antisocial or criminal behavior was associated with offspring delinquent behavior both cross-sectionally and longitudinally.

In summary, the literature is supportive of the notion that parental pathology in general appears to have deleterious effects on the functioning of the offspring. The results support the conclusion that parental alcoholism, antisociality or criminality are differentially associated with hyperactive and/or aggressive behavior in the offspring. At this global level, the results are relatively satisfying. However, if inquiries are pursued as to the effects of specific diagnoses (diagnoses is used to include both psychiatric categories and significant deviant behavior such as criminality), whether the sex of the diagnosed parent matters, whether two diagnosed parents are more damaging than just one diagnosed parent, or how a parental diagnosis is translated into a particular outcome in the offspring, the previously satisfying picture becomes very much less satisfying.

Future studies in this area need to bring a broader conceptual and methodological vision that builds on recently reported epidemiological findings and a more explicit notion of development. For instance, three broad periods of influence might be distinguished: conception, gestational, and post-natal. At conception, the parent's genetic material unites. In many studies the contribution of 'other' parent - usually the mother - to their offspring's phenotype has been ignored. There are really three questions here: 1) are two diagnosed parents more damaging than one parent of either sex; 2) does a maternal diagnosis contribute additionally to a paternal diagnosis; and 3) are there sex specific diagnoses that are especially damaging. There is evidence from several existing studies (McCord, McCord & Zola, 1959; Merikangas et al., 1985; Robins, 1966; Robins, West & Herjanc, 1975) that the answer to question one and, possibly, question two is yes. Each study cited above found that two diagnosed parents are more damaging than one. In particular, McCord et al. found that a deviant mother seems to act as an "accelerator" given a criminal or alcoholic/promiscuous father. That is, a dramatic increase in the percentage of criminal sons was found when both the mother and the father were deviant. There was no difference in the percentage of criminal sons when either the mother or the father was deviant. Robins (1966) and Robins, West and Harjanic (1975) report similar results. Data pertaining to question three have really not been reported yet.

Most, if not all, previous studies have cast too narrow a diagnostic net. This is especially true of the alcoholism focused studies. The particular problem is that alcoholism as a psychiatric diagnosis often occurs in combination with other psychiatric diagnoses. For instance, Boyd et al. (1984) found that drug abuse/dependence, antisocial personality, manic episodes, and depressive episodes co-occurred with an alcoholism diagnosis at levels very much above chance in population studies. Thus, unless a complete diagnostic evaluation is conducted, the unique contribution of alcoholism will not be able to be established.

Lastly, the question of maternal-paternal diagnosis pair combinations has not been really explored. The extant studies on this topic (Merikangas et al., 1985; Robins, 1966; Robins, West & Herjanc, 1975) indicate that a replicated pair diagnosis (i.e., both parents antisocial, alcohol or criminal) place the offspring at substantially elevated risk. How a replicated diagnosis compares to other diagnostic pairs is unknown.

The gestational period must be regarded as extremely important for alcoholic women who continue to drink during their pregnancy due to the possibility of alcohol effects on their fetus (see Abel & Sokol, 1990 for a review). As noted by Abel and Sokol, one of the consequences of very high levels of alcohol consumption during pregnancy is hyperactivity. Could the excessive activity levels and hyperactivity noted by Merikangas et al. (1985) and Knop et

al. (1984) be a consequence of maternal alcohol consumption during pregnancy rather than paternal alcoholism? Without detailed information on the gestational period, detailing the natural history of development will be a significant problem.

That part of the postnatal period during which the child resides with his parents, in particular, the preschool years, is a period of great complexity as the child's genetic makeup meshes with the social and physical environment determined and maintained by his parents, in particular, his mother. In this period, the influences between parents and child are probably both bidirectional and reciprocal.

In contrast to the conceptual model just advocated, the models of effect implied in the current work are much more limited in scope. Since no intervening variables are proposed, the linkage is ostensibly direct, which suggests a genetic route. The two alternatives are to propose that either the effect is carried by way of father-child interaction or that the father selects a mate who will socialize the child in an antisocial manner. The first alternative suggests that the father may be the principal caretaker -- a quite unusual and probably implausible division of labor at least for the manifestation of conduct problems in the preschool years. The second alternative is tenable because mate selection is probably partially assortative. If the purely paternal genetic hypothesis is

rejected as well as the father as caretaker hypothesis, the focus must shift to the mother's or the caretaker's contribution to child outcome.

The caretakers' contributions to their child's outcome is their behavior towards the child as the child progresses through its development. There is a developing literature that links the caretaker's behavior towards their children with their own characteristics, in particular their own psychological functioning. One of the first studies of this literature was stimulated by the observation that mothers of clinic referred antisocial or conduct problem children seemed chronically depressed to observers. Subsequent studies (e.g., Brody & Forehand, 1986; Griest, Forehand, Wells, & McMahon, 1980) have found that mothers of such children do report themselves to be more depressed than mothers of nonclinic referred children. Other work in this literature has examined differences between child abusing and control mothers (Reid, Kavanagh, & Baldwin, 1987) and between affectively ill and control mothers (Kochanska, Kuczynski, Radke-Yarrow, & Walsh, 1987).

The work on the relationship between caretaker functioning and child outcome can be moved forward by treating psychopathology labels as markers of more specific cognitive and affective processing operations which precede parents' behavioral responses to their children. Two studies which illustrate this point are Reid, Kavanagh, and Baldwin (1987) and Holleran, Littman, Freund and Schmaling (1982).

Holleran et al. found that parents of normal children were better able to identify positive behavior occurring in series of vignettes than were parents of conduct problem children. Reid et al. found that abusive parents rated their children as significantly more aggressive and conduct disordered than did nonabusive parents, even though home observation indicated equal levels of child aversive behavior in the two type of families.

How do these operations apply to parenting? Consider a heuristic model of the processing that might be required of a parent during child care. The outline of this model is derived from Patterson (1982); Patterson, Dishion and Bank (1984) and Patterson (1986), but also modified from their work. The sequence might be 1) parent attends to the child's behavior; 2) parent constructs a representation of the behavior; 3) parent evaluates the behavior against their representation of punishable or praiseworthy behavior. If the behavior is punishable, then 4) select punishment intervention from options; 5) evaluate probability of success against past interactions of this type with child and current context; and 6) reselect punishment if necessary. At this point, the parent administers the punishment and returns to point (1) in the sequence. If the behavior is praiseworthy, then steps 4 through 6 might be similar but would concern selection of praise interventions.

Let us now turn to the scant evidence relevant to this heuristic model. The role of attention (termed monitoring)

has been examined by Patterson and Stouthamer-Loeber (1984) for adolescents. Their data indicate that low monitoring (defined as simply knowing the whereabouts and activities of child) shows large associations with subsequent police contacts and delinquent life style. Step 2, construction of a representation, has not been examined. Several studies have examined the hypothesis of evaluation biases in child behavior. The Holleran et al. (1982) study and the Reid et al. (1987) study cited above are both relevant here. Although Dodge and associates have done no work with adults, their data derived from aggressive children seem also applicable here as well. Other parts of the heuristic model remain unexamined.

Although the above model appears to be singularly cognitive, I would propose that each step involving construction or evaluation involves an interplay of affect and cognition. However, the relationships between affect, cognition, and behavior in the parenting domain have not been examined.

In summary, the data on parent characteristics, even with substantial unanswered questions, suggest certain parental pathology categories are associated with increased risk for child conduct problems. The details of how these associations work themselves out in day-to-day parent-child transactions remains unknown.

Parental Relationship Influences

The child's parents can be thought of as being embedded in two relationships with each other. The first is the romantic relationship. The second is the parental relationship or parenting alliance (Cohen & Weissman, 1984). The parenting alliance is distinguished from the romantic relationship by its focus on the cooperative venture of child rearing. This also has the advantage of decoupling divorce (dissolution of the romantic relationship) from parental loss. Unfortunately, virtually none of literature makes this distinction because divorce has nearly always meant the dissolution of parenting alliance as well as the romantic relationship.

The impact of the quality of the marital relationship on child behavior has been the subject of a number of investigations. In a review and meta analysis of a number of these studies, Loeber and Stouthamer-Loeber (1986) found that both cross-sectional and longitudinal studies showed significant associations between marital relationships marked by turmoil and conflict and increased child conduct problems. The fundamental question is how conflict between parents is transmitted to the child. Emery (1982) proposed six mechanisms by which this might be achieved: attachment and separation, modeling, discipline practices, stress, taking on the symptom, and child effects. Several of these putative mechanisms are especially salient for the current discussion.

The first mechanism is modeling, which refers to imitation of parent's actions against peers. One study (Cummings, Iannotti, & Zahn-Waxler, 1985) illustrates this effect. Children, aged 27 months, witnessed angry verbal interchanges between adults unrelated to them while playing with a peer. Their data indicate that the children who had been exposed to the angry interchanges were more aggressive to peers than were nonexposed children. Further, cumulative effects were noted for children receiving two exposures.

The second mechanism is disciplinary practices. Here, the hypothesis is that conflict leads to a breakdown in discipline. This hypothesis must remain unconfirmed because relevant data do not exist. The hypothesis is very appealing because disciplinary practices are a commonly mentioned point of conflict for parents. The third mechanism is stress. Here, the presence of conflict is generically subsumed as a "stressful event". (The impact of the stressful events is presented and discussed in the section on external events and stress.)

Integrating these preferred mechanisms suggests that multiple influences should be operating at the same time. For the parents, conflict serves as a stressor, whose impact on child rearing, especially discipline, will be described. Following Cummings et al. (1985), the children would respond to angry interchanges between their parents with outbursts of aggressive behavior. The outburst of aggression then strains parental discipline abilities and also serves as a

further stressor for the parents. If the conflict were over disciple practices itself, the effects might well be exacerbated. Cummings et al. also reported that about 42% of the children exhibited distress behavior (e.g., freezing, crying, seeking comfort) during the angry interchange. Hypothetically, if the same event were to happen during a true marital conflict, it seems unlikely that either parent could effectively comfort the child, thus, leaving the child in rather vulnerable position.

Family Structure

The structure of the family defines in very broad terms the kinds and types of interactions which family members may have with one another. Five variables that describe family structure are family size, child spacing, birth order, sex of siblings, and parental absence. Variables such as family size, birth order, and child spacing arise from parental decisions about children. Sex of siblings remains as of now still out of the control of parents. Parental absence refers to the set of the several ways in which a parent may leave a family.

The size of the family, and its derivative, birth order, have been examined for their relationship to conduct problems. The most interesting of several studies that have examined family size as correlate of conduct problems was that of Burgess, Kimball & Burgess (cited in Patterson, 1982). Overall, they found a .43 correlation between family size and an observational measure of physical aggression. As

would be expected, with increasing family size parents are forced to interact less with their children. Thus, in increasingly larger families, the interaction is sibling dominated rather than parent dominated. To attempt to make up for the reduced parenting time, a study by Circerelli (1976) suggests that in larger families, mothers respond to the increased supervision demands by delegating parental functions to older siblings. The consequences of this delegating maneuver by mothers likely depends on the age of the surrogate parent, as a marker of cognitive and affective understanding, and the parenting ability of the child cum parent relative to that of the mother. However, since children of any age likely have, on average, less skill in noncoercive discipline, the pseudo-parents might be more inclined to respond coercively when needed or to not respond at all. Either way, the net results are likely reductions in the conditional probabilities for punishment of transgressions and praise of prosocial behavior. Possibly, an increase in punishment severity might also occur if the parent has to 'step in' to restore order.

The second family structural factor is that of birth order. Two studies (Rutter, Tizard & Whitmore, 1970; Anderson, 1969) have found that a birth position of middle child is associated with increased conduct problems. Reviewing these data, Patterson (1982) proposed that middle children are the most aggressive because they have older siblings and parents as models and younger siblings to

practice on.

The third structural factor is the sexual composition of the siblings. In a meta analytic study of sex differences in aggression, Macoby and Jacklin (1980), found that boys under age six were significantly more aggressive than girls in the same age range. Thus, the above findings on birth position and family size must be qualified to take into account the sex of siblings. The presence of girl siblings instead of boy siblings might lead to quite different outcomes by virtue of changes in the microsocial interaction between target and sibs and between target and parents. Between target and sibs, the presence of girl siblings might shift the sib coercion probabilities downwards and bias the interaction toward other activities. Between target and parents, girl sibs might mediate parental tolerance of intersib aversive behavior as a consequence of gender socialization expectations.

The loss of a parent, as noted above, can occur for a variety of reasons and the reason for the loss may have quite different effects. However, separating these effects from the preceding sequence of events is quite difficult. In their review, Loeber and Stouthamer-Loeber (1986) note significant effects for children living in divorced single parent homes. Similar effects were noted by Allison and Furstenburg (1989). The data for children living in homes where a parent has died show mixed effects (Gregory, 1965; Brown, 1966). Because of previously reported data on marital

quality and child conduct problems, the impact of the loss of a parent by divorce on child behavior is open to question. The key question is whether one parent can handle child rearing as effectively as two parents in the absence of parental conflict.

External Events and Stress

Individuals and families are all subject to events external to themselves. Some of these events are cause for joy and happiness; others involve actual or threatened loss, disruption of routine, or hardships. As a number of studies have shown (e.g., Holmes & Masuda, 1974; Dohrenwend & Dohrenwend, 1974) there is retrospective evidence that significant aversive life events are followed by increases in psychiatric symptomatology, especially depression, and, possibly, physical illness. But, as Patterson (1982) points out, these major aversive life events are relatively rare. More common are the daily round of small aversive events -- hassles, such as transportation, education, relationship and economic issues -- that all people face. Although the consequences of the increased load of both hassles and life events which some families face have been described anecdotally (e.g., Tonge, James & Hillman, 1975), it is only recently that the impact of these events on microanalytic parent-child interaction has been theorized about and empirically examined.

Two research groups, Patterson and associates (Patterson, 1982; Snyder, 1988) and Wahler (1980) and Dumas

(1986) have been active in the caretaker stress-parent-child interaction field. While the two groups have focused on somewhat different conceptual definitions of stress and units of measurement, both groups posit that the mother (or caretaker) mediates the impact of aversive events on children under her care. Thus, the prediction is that increases in the number of aversive events will be associated with increased levels of aversive maternal interaction.

Patterson (1982, 1983) and Snyder (1988) have defined aversive events (crises) simply as things occurring to some family member that might disrupt the ordinary routine and demand that the parents "do something". Accordingly, a list of possible crises in seven areas (family relations, household and transportation, economic, legal, health, school, and social interchange) was constructed. Using a single subject repeated measures design Patterson (1983) has reported mixed results for a small sample of five families with young children. Using his measure of aversive events and mother continuance, Patterson reported correlations of .45, .58, and .61 for one group of three families and correlations of -.45 and -.70 for another group of two families. As Patterson notes, these very preliminary data support the existence of a quite sizable relationship between aversive events and maternal interaction that may be family specific rather than general.

In contrast, Wahler (1980) and Dumas (1986) have focused much more narrowly on interactions between the mother and adults outside the family (e.g., relatives, friends, and agency staff). These data are used to derive an insularity index (see Wahler, 1980 for details) which measures the extent to which a mother's extrafamilial contacts are aversive or limited to agency staff or relatives. Roughly, Wahler's insularity measure corresponds to Patterson's sublist of social interchange crises. Using measures of mother continuance and mother crossover, Dumas (1986) found significantly larger conditional probabilities of aversive interactions with the child on days when mothers were described as insular than on noninsular days.

The foregoing discussion has presented the aversive events hypothesis in its simple form. As noted by Patterson, coping with aversive events is a process. At the current time, the elements of this process have been speculated about, but certainly not fully tested. Drawing on Patterson's (1982) conceptualization, currently identified components are parental mood, problem solving and resources, social support network, and prosocial family management practices. Preliminary results (Patterson, 1983) are frankly mixed - as in the results reported above. Across time, only some mothers show the expected inverse relationships between external events and mood. However, in a crossectional study, Patterson (1982) did find support for the link between aversive events and measures of problem solving process

outcomes.

One point that must be added to the foregoing discussion of the relationship between stressful external events and parent-child relations is that there is a feedforward relationship between behavior and crises. Consider a family with an alcholic father. The father's overuse of alcohol has consequences (lost jobs, low paying jobs, legal bills, etc) that create future crises for both he and his partner. Thus, I suggest that certain types of pathology, notably alcoholism, antisocial behavior, drug depencence, and criminality, might likely function as sources of stress for the focal person and for other persons involved in significant relationships with that person.

Integration

To draw together and integrate the diverse areas examined in the foregoing review, I will draw on the idea of nested environments which differ in their stability and the degree to which the target child can exert influence on them. These relationships are depicted in Figure 1.

The innermost environment is the individual level. This level refers to the characteristics of the family members as individuals across relevant domains (e.g., physiological, cognitive, and affective). The relevant domains include, but should not be limited to, physiological processes such as temperament, sociocognitive processes such as social problem solving and social cognition, and the products of these processes. These processes operate on both incoming stimuli

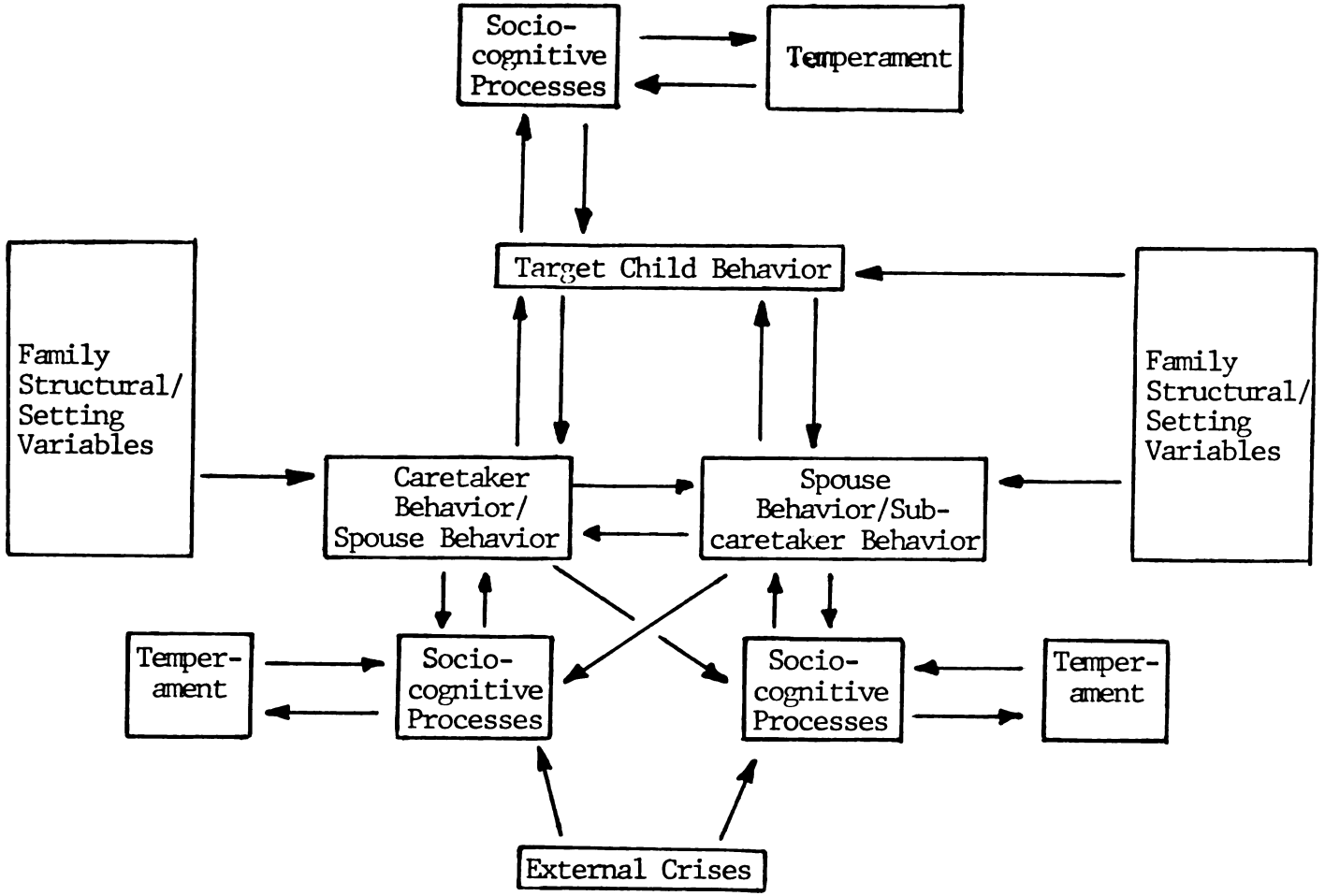
and on stored representations of such stimuli. For the parents, these domains could be viewed as undergoing slow developmental change in response to maturation and their environment. The situation is quite different for children. Here, the domains are likely developing rapidly in response to maturation and their environment as illustrated, for example, by children's conceptions of self (e.g., Harter, 1983). In this review, the most salient environment for preschoolers is assumed to be the parent-child relationship, but certainly there are other environments as well.

The second environment is the network of relationships between family members (marital, parental, and sibling) where interaction occurs. In this model, the relational environment is thought of as purely behavioral - word and deed. Possible internal working models of relationships are consigned to the individual level. Within the network of possible relationships, family members are both participantsin relationships and observers of relationships. In this review the participant component has been emphasized while the observational component has been neglected.

Of the relationships examined, the parent-child relationship is viewed as most important. In this relationship, the contribution of the target child is fully equal to that of the parent, but qualitatively different. Through contingent responding to child initiated behavior and parent requests, the parent attempts to move the child

Figure 1

Process Model of Conduct Problem Development



toward their own representation of normative development. The failure of the parent in this task, as indicated by coercive parent-child interactions, is presented as having negative and possibly destructive influences on the marital relationship and other family relationship. Likewise, coercive and aggressive sibling relationships are thought to exert similar influences. The impact of aversive child behavior requiring parental attention and problem solving is conceptualized as stress and is envisioned as the currency of exchange between relationships. When stress from this source or other sources (e.g., external crises or marital issues) enters the marital relationship, conflict is thought to follow. Apart from the significance of conflict to the marital relationship, observers (i.e., children) are expected to be effected through modeling and impaired discipline practices.

The outermost environment is the structural environment of the family. This environment is defined by the family structural elements (family size, birth order, sex distribution and parental absence) and external events (crises). This environment is envisioned as undergoing generally slow change which is almost beyond the influence of the target child, especially in the preschool age range. With respect to the target child, these elements define the environment into which the child is born and will grow up.

Implications for Intervention

At the outset it must be acknowledged that the model developed above could be used to support almost any particular type of intervention. For instance, interventions designed to reduce family external crises would be supported as would interventions designed to change the target child's working model of their relationship with parents and siblings. However, the model suggests that the most direct interventions would attempt to change the parent-child relationship. More specifically, the interventions should be designed to alter the parent's contingent responding to the child. The review of Patterson's (1982) work suggests that parents must be able to terminate each of the four coercion process variables (crossover, counterattack, acceleration, and continuance) when directed against themselves (the parents) or other siblings. At the same time, the data suggest to me that parents must be able to constrain their own use of these process variables against their children. As noted in the above review, the focus on coercive behavior has overshadowed an understanding of the development of prosocial behavior and possible interrelationships with antisocial behavior. Thus, the model is mute on the role of prosocial behavior.

Because the model presents a systemic view of conduct problem development, it is not safe to conclude that interventions at the parent-child relationship alone would be sufficient to reduce conduct problems. Thus, additional

or supplementary interventions designed to address other points in the model will most likely be required. The model in Figure 1 presents parenting behavior as arising from the parent's socio-cognitive processing of their child's behavior as influenced by external stresses, the marital relationship, and the general and specific effects of parental psychopathology. To the extent that parental pathology or marital conflict prevents the parents from altering their current child management practices, then significant and sustained attention will need to be paid to these factors. If, for example, one or both parents have significant alcohol problems or drug problems, then significant amounts of focused clinical services will need to be provided to address the problem behaviors of the affected parent(s) so that they and their partner are able to function as parents. In the context of destructive parental alcohol use, the review of alcohol treatment trends by O'Farrell (1989) suggests that these issues can be effectively addressed in the context of marital and family interventions.

Intervention Methods for Children with Conduct Problems

The review of conduct problem development in the preceding chapter identified the parent child relationship as important in supporting the development of conduct problems. Therefore, interventions should be directed at altering or changing this relationship in ways that do not support or promote the continuation of existing behavior. Potentially, many forms of therapy might be used in this endeavor. However, in recent years, an increasingly popular and well researched therapy for treating conduct disordered children has been behavioral parent training or, simply, parent training. Parent training is similar to other behavioral forms of therapy in its underlying model of the etiology of problem behavior. The model states ". . . that childhood behavior problems are largely a function of naturally occurring environmental contingencies - specifically those occurring in the family between parent(s) and child." (Griest & Wells, 1983, p. 37). Thus, if the parenting environment is changed, the child will change. Since the parents are responsible for creating the environment, a parenting deficit is posited (Griest & Wells). The solution, therefore, is to teach parenting skills to the parents. And, as Moreland, Schwebel, Beck and Wells (1982) point out, the success of this enterprise is

measured by behavior change in the child.

The use of parents as behavioral therapists or change agents for children with conduct problems has been a topic of research for more than two decades. Beginning with the first reports of successful work (e.g., Hawkins, Peterson, Schweid, & Bijou, 1966; Wahler, Winkel, Peterson, & Morrison, 1971; Patterson & Brodsky, 1966), there has been a steady stream of single subject case reports and group designs. In addition, a number of qualitative reviews have surveyed the whole area of behavioral parent training (e.g., Berkowitz & Graziano, 1972; Johnson & Katz, 1973; O'Dell, 1974; Moreland, Schwebel, Beck, & Wells, 1982). More specialized areas of work have been reviewed as well. For example, generalization and maintenance of behavior was reviewed by Sanders and James (1983) and Forehand and Atkeson (1977); and studies using multiple outcome criteria was reviewed by Atkeson and Forehand (1978). Thus, in many respects, the parent training area is both well studied and well reviewed.

Reading reviews of parent training studies suggests a picture of homogeneity with respect to design considerations, programs, subject characteristics, and success criteria. However, a reading of the extant body of parent training studies shows these studies to be anything but homogenous. While each study is certainly interested in testing the general concept of using parents as behavior therapists for their children, it became clear that

different research groups had made different design decisions regarding a number of methodological and programmatic issues. Nowhere in the literature has this been discussed. Thus, the purpose of the present review is to systematically evaluate the methodological quality of the parent training literature.

Studies

Studies were selected for this review according to the following criteria. First, the subject population must have been children who are described as having conduct problems. The following terms were regarded as synonyms for conduct problems: oppositional, noncompliant, tantrum behavior, socially aggressive, and delinquent. Children who were also described as retarded, autistic, developmentally delayed, or having language deficits in addition to conduct or behavior problems were not included. Children who were receiving medication for hyperactivity or attention deficit disorder were also excluded. No distinctions were made regarding the referral sources. Thus, while some differences might exist between children and youth referred by parents as compared to those referred by social agencies (e.g., courts, clinics, or schools), this differentiation was not examined in this review.

Second, at least one of the treatments provided must have been labelled as "parent training" or contained a parent training module. The phrase "parent training" or "behavioral parent training" was defined to be the

following. An intervention program that teaches the use of specific behavior modification techniques to parents to assist them to change their children's behavior. The specific behavior modification techniques taught must have included both negative reinforcement procedures (e.g., time out or ignoring) to diminish unwanted behaviors and positive reinforcement procedures (e.g., contracting or star charts) to increase desired behaviors. The role of the parents must have been that of primary intervenor while the role of the therapist must have been that of a consultant to the parents.

Programs containing other modules (e.g., communication or problem solving training, social learning education, or marital work) were included if the program also included a parent training module. Programs which used teachers as primary therapists were excluded - even if they only prepared notes or "daily report cards" for the parents - because teacher-based interventions explore a different domain than do parent-based interventions. However, studies that included a school based component, but which retained the parents as the primary therapists, were accepted.

Third, the age range of the children had to be middle and late childhood. Studies where the mean age was above eleven years were excluded. Fourth, the study must have had one or more behavioral outcome measures. Thus, a study which solely used a measure of knowledge would be excluded. Fifth, only studies reporting group level analysis were included.

A list of potential studies was developed by searching Psychological Abstracts for the period 1978 to the current time under the term "parent training". Studies which appeared to incorporate a behavioral component in the intervention were placed on the list. A second list of potential studies was developed by examining the following journals from the first issue or the issue for 1970 (whichever was later) to the most recent issue available. The journals examined were Behavior Therapy, Behavior Research and Therapy, Journal of Behavior Therapy and Experimental Psychiatry, Behavior Modification, and Journal of Applied Behavior Analysis. A third list was developed by examining the previously published reviews of the parent training literature. The three lists described above were merged and the resulting articles were examined to determine if the article met the selection criteria set forth above; if so, the article was abstracted.

Using the above procedures, a total of 35 journal articles, book chapters, technical reports, and dissertations were identified and obtained for the review. Because several reports were often prepared from the data collected from one group of subjects, or subsequent reports combined earlier "interim" reports prepared on groups of "subjects to date", the number of groups of subjects actually treated were 25. Table 1 summarizes the relationship between the analysis unit and the underlying research report.

Table 1
Citation List of Studies in Review

Study ID	Reference citation
1	Patterson, Ray and Shaw (1968)
2	Patterson (1973)
	Patterson (1974a)
	Patterson (1974b)
3	Patterson, Chamberlain and Reid (1982)
4	Fleischman (1981)
5	Weinrott, Bauske and Patterson (1979)
6	Fleischman and Szykula (1981)
7	Eyberg and Johnson (1974)
	Johnson, Christensen and Belamy (1976)
	Johnson and Christensen (1975)
8	Christensen, et al. (1980)
9	Peed, Roberts and Forehand (1977)
	Forehand, Sturgis, McMahon et al. (1979a)
10	Forehand and King (1977)
11[a]	Forehand, Griest and Wells (1979)
	Forehand, Wells and Griest (1980)
12	Wells, Forehand and Griest (1980)
	Wells, Griest and Forehand (1980)
13	McMahon, Forehand and Griest (1981)
14	Griest, Forehand, Rogers et al. (1982)
15	Adesso and Lipson (1981)
16	Bernal, Klinnert and Schultz (1980)
17	Glogower and Sloop (1976)
18	Karoly and Rosenthal (1977)
19	Sanders and Christensen (1985)
20	Webster-Stratton (1985)
21[a]	Dumas and Wahler (1983)
22[a]	Dumas and Wahler (1983)
	Dumas (1984)
	Wahler (1980)
23	Webster-Stratton, Kolpacoff and Hollingsworth (1988)
24	Sayger, Horne, Walker and Passamore (1988)
25	Firestone, Kelly and Fike (1980)

Note: [a] This report presents two separate samples.

From the review of the literature, three main groups of parent training studies were identified. The first group (IDs 1 to 8 in Table 1) refers to subject groups that were either 1) treated at the Oregon Social Learning Center (OSLC), or its predecessor, the Oregon Research Institute; 2) used OSLC procedures and materials as evidenced by references to OSLC training manuals; or 3) used therapists trained by OSLC staff. The second group (IDs 9 to 14) refer to subject groups that were treated by Forehand's program at the University of Georgia. The third group (15 to 25) refers to subject groups who were treated by other researchers. In many cases, the reports are apparently "one shot" efforts, while in others the reports represent a more programmatic study (e.g., IDs 21 and 22). Essentially then, there are two relatively homogenous sets and a heterogenous set of subject groups with respect to treatment methodology (e.g., design, intervention, subject selection criteria, and outcome measures).

Study Design

Five design characteristics were examined: 1) the use of comparison groups, 2) the observation (measurement) schedule, 3) procedures for assigning subjects to groups, 4) procedures for assigning therapists to subjects; and 5) the use of screening or selection criteria.

Using the terminology of Cook and Campbell (1979), the comparison groups employed were categorized as treated control group, untreated control group, nonequivalent

comparison group, or no comparison group. A control group was defined as a group of subjects from the same population as the treatment group, while a non-equivalent comparison group was defined as a group of subjects drawn such that the intervention target (i.e., behavior problems) was not present. A control group was categorized as "treated" if subjects received an intervention other than parent training (e.g., family therapy, or psychodynamic therapy). Other types of interventions (e.g., attention placebo or bibliotherapy were considered to "untreated". The measurement schedule was categorized into three groups - posttest only, pretest-posttest, and repeated measures. The studies were then crosstabulated on the basis of these two factors, and the results are shown in Table 2. Because several studies used both a control group and a nonequivalent comparison group, a study could be assigned to more than one category.

As shown in Table 2, most studies either did not use a control group or used a treated control group. This was especially true as the study moved beyond a simple pretest-posttest measurement design to a repeated measurements design.

There are three critical hypotheses that need to be investigated in outcome research. The first is whether the treatment leads to a measurable change in the criterion. The second is whether the changes wrought during treatment persist over time. The third is whether the treatment is

Table 2
Design Characteristics of Parent Training Studies

Type of comparison group	Measurement Schedule	
	Pretest - Posttest	Pre, Post, Followup
None	7	1, 2, 4, 5, 6 20, 21, 22
Nonequivalent	10, 11, 19	
Untreated control	8, 9, 16, 24	15, 18, 25
Treated control	3, 12, 16	13, 14, 17, 19

Note. The numbers in the table are the ID numbers of reviewed studies in Table 1

more effective than competing treatments. The first two hypotheses require an untreated control group, while the third hypothesis requires a treated control group. Thus, it would seem that every parent training study should include a control group.

The random assignment of subjects to groups is the sine qua non of experimental methodology. In six of the 11 studies (IDs 3, 8, 15, 16, 18, 19, 24, and 25) using control groups, random assignment was used. Four studies (IDs 9, 12, 13, and 14) stated that subjects were assigned to groups on the basis of intake information - possibly to balance group characteristics. One study (8) formed triplets of matched families and then randomly assigned families to groups. Lastly, one study (17) did not state how families were assigned to groups.

The purpose of random assignment procedures is, of course, to generate groups of persons who are, on the whole, equal to one another at the start of the study. This assumption of statistical equality is actually a hypothesis which can be tested. The data suggest that a test of this hypothesis was done in about half of the studies. Where the test was made, it was most often done for the demographic data rather than the pretest treatment measures.

The other half of random assignment in treatment evaluation research is the procedure used to assign therapists to subjects. It is here that the methodology and/or reporting in these studies was weakest. Few of the 25

studies reported how therapists were assigned to subjects. Where this information was reported, the therapist simply took the next case in the queue.

Using a screening test or a cutoff score on one of the evaluation measures to select the study sample is a relatively new innovation. This innovation arose because researchers (Eyeberg & Johnson, 1974) noticed that some children referred for aggression did not appear aggressive on observational measures. For instance, Eyeberg and Johnson reported that 7 of 17 referred children had home observation scores below the mean for nonreferred children. A cutoff score was apparently first used by Patterson and colleagues. Fleischman and Szykula (1981) and Weinrott, Bauske, and Patterson (1979) reported using a cutoff score which was .5 standard deviations above the mean for normal children to select children for a treatment study. Two other studies (Bernal, Kinnert, & Schultz, 1980; Webster-Stratton, 1985) have used selection criteria. Bernal et al. combined observational data and parent report data to select their subjects while Webster-Stratton used parent interviews and behavior checklist data to select her subjects. Although the details vary between studies, the point is to screen out children who do not have a sufficiently high levels of conduct problems at pretest.

While using a screening or cutoff score is appealing because it appears to better define the sample, this rationale is perhaps misleading. Selection criteria have

always been used. In studies with referred populations, the referral source judges whether the youth or family is appropriate for the particular program. In studies with self-referred populations who have responded to appeals for 'children with behavior problems', parents have done the selection. Intake interviews and parent report measures constitute another type of selection. Thus, the issue for Patterson and colleagues is better stated as one of inter-rater agreement -- their different data measurement procedures were generating disparate results in some cases.

Using a selection battery to select participants for a study can invite statistical problems later on if the same instruments are used to both select the sample and then evaluate the progress of the participants. The problem that may be created is regression to the mean. This problem arises because the potential participant's score is the sum of true score and error components. Some people will be selected in because of error, while others will be selected out because of error. However, when the selected group is again tested, the people whose error component made their score high will tend to have a lower score solely due to the new component. The solution for this problem is to use one set of instruments to select and another set to monitor progress.

Outcome Measures

The different types of outcome measures employed in the studies reviewed here can be grouped into three general

classes. The first class is behavioral observation by trained observers of a particular family member's or all family members' ongoing behavior in a specific context. The target's behavior is coded into a set of predefined categories either on an interval basis or on a continuous basis. From these raw data, the specific outcome measures are derived by behavior production rates and/or conditional probability values for individuals or dyads. The interrater reliability of these measures can be quite acceptable. For instance, Patterson (1982) reports a median interrater reliability of .92 (range: .59 to 1.00) for the 29 categories of their coding system for a group of 11 families. This type of measure was almost universally used - only one study did not use an observational measure. Most commonly, observational data were collected in the home (21 studies) rather than the laboratory (one study). Only three studies used both home and laboratory observations.

The second class of outcome measure is parent observation. In this class of measures, the parents (usually, but not always, both mother and father) report on a daily basis whether or not any behavior on a standard list of behaviors occurred on the previous day. Thus, parents are not asked to make judgements on behavior frequency or duration. Typically, the list focuses on both high base rate pro- and antisocial behaviors and on low base rate behaviors such as stealing or fire setting. An example of this type of measure is the Parent Daily Report (Chamberlain, 1980).

Test-retest correlations for this measure range from .60 for referred families to .89 for normal families (Patterson, 1982). Between parent correlations have been reported as being .51. This type of measure was used by nine studies (40%).

The third class of outcome measure is parent ratings of child behavior. This class includes measures such as parent impressions, parent attitude, or a behavior checklist. Examples of this class would be any of the number of standardized paper and pencil measures (e.g., Becker Adjective Checklist, Parent Attitude Test, or Child Behavior Checklist). Thirteen studies (52%) used this type of measure.

Cumulating across measures shows that ten studies used just one type of outcome measure and nine studies used two types of measures. Only five studies used all three types of outcome measures.

The choice of which types of outcome measures to specify in a research design is clearly difficult. In the absence of considerations about the cost of data, the choice should be to use all three types of measures for three reasons. First, observational data give access -- albeit at limited time points -- to both process and outcome variables. Second, observational data are likely to be the least affected by subject characteristics such as depression (Brody & Forehand, 1986). Third, the use of multimethod, latent variable models are better fitted with three types of

measures than one or two. When data acquisition costs preclude observational measures, Patterson (1982) recommends using a parent observation measure such as the Parent Daily Report for reasons of reduced reactivity. Relying on parent report types of measures alone is also problematic for the reason stated above. If parent report measures are used, serious consideration should be given using a statistical treatment of the data that minimizes reactivity and parent bias effects. In the longer run, reactivity and bias effects might be recognized as inter-individual differences that can be measured and statistically modeled. For example, parent report of child behavior might be viewed as the output of a two-part process consisting of observed child behavior and parent psychological functioning.

Success Criterion

One of the key choices that an investigator must make is the selection of an appropriate success criterion. Two methods that have been used in the literature are a significant difference between treatment and control means at posttest or followup and setting a percentage decrease on one or more outcome variables and/or other conditions. Using a significant group difference is the most common method of defining success. The method of setting a percentage decrease has been has been used by two studies (ID's 20 and 22). Among the studies using this approach, a 50% reduction in reported child problems is a commonly used criterion. A variant of this method is to define success as

successful completion of the program and successful use of taught skills at termination or followup (Dumas, 1984).

The use of a group differences analysis is, of course, the classical model, but it is not clear that this approach is superior to the other. Evaluating success on a casewise basis is an individual differences approach that seems closer to the layman's and clinician's notions of success. However, this approach has strong dangers. Most notable is deciding how much of a decrease is necessary before assigning the case to the success column. The choice of a percentage should depend on both the mean(s) and standard deviation(s) of the measure(s) used. For instance, on the Child Behavior Checklist (CBCL) (Achenbach & Edelbrock, 1983) a raw score of 30 on the Aggression scale corresponds to a T score of 82 for 6-to-11-year-old boys. A 50% percent reduction in T score would be a T of 41. But, a T of 41 is unattainable - a raw score of 0 corresponds to a T of 55. On the other hand, a 50% reduction in raw score - from 30 to 15 - corresponds to a T of 63 - a score that is within the normal range. Thus, 50% is too large a reduction on a T score basis but about right on a raw score basis. An intuitive solution for instruments such as the CBCL is to count success as a reduction to the normal range for the scale. For unnormed and locally developed instruments, clinical judgement would seem to be the only guide.

Treatment Program

The core content of a parent training program is quite well agreed on by workers in the field: each family needs to learn how to track or monitor a chosen behavior, properly use positive reinforcement to increase desired behavior, and properly use negative reinforcement to decrease undesired behavior. There is agreement on the sequence of the content areas - tracking specific positive and negative behaviors, positive reinforcement for desired behavior via star charts and contracts, and negative reinforcement for undesired behavior via time out procedures. The final point of agreement is on careful record keeping to provide feedback to the parents and the child and to facilitate tracking treatment progress by the therapist.

The differences between the programs emerge when one moves from the core content of the program to the implementation particulars of the treatment regimen. The descriptions of the treatment programs used in the studies included in this review suggested five dimensions along which the programs vary: 1) meta-theoretical model, 2) treatment format, 3) paternal involvement, 4) length of treatment, and 5) adjunct services.

In the studies reviewed there are two meta-theoretical models of program organization. The first, which I call the goal attainment model, refers to a program model in which a family advances from one stage to the next on the basis of attaining some criterion level of performance. The clearest

example of this type of model is provided by Patterson, Cobb and Ray (1973). First, parents must read a text on social learning and pass a test on the material. Second, parents are taught to track a specific behavior and must then track the behavior for at least three consecutive days. Third, parents are taught to notice the antecedent behaviors and the consequences of the tracked behavior. Fourth, parents are taught how to implement an intervention program using positive and negative reinforcement. Another example is the program used by Forehand and associates (Peed, Roberts & Forehand, 1977). First, mothers are taught to attend to their child's behavior and to not direct commands, questions, and criticisms toward their child. The mother begins the next stage when her behavior reaches criterion during the session's first observation period.

In contrast to the goal attainment model, the second model, which I call the psycho-educational model, refers to a program model where a family collaborates with the therapist. The best example of this type of model is provided by Weinrott, Bauske and Patterson (1979). In this model, groups of two or three families attend a set of ten prestructured sessions where they view videotaped presentations of agenda items, and then consult with the therapist in designing an intervention program for their specific circumstances. In this program model, as opposed to the goal attainment model, parents do not need to demonstrate competence to move to the next step.

The treatment format refers to the format in which the program content is delivered. Three basic formats have been used as well as combinations of these basic formats. Both individual and group formats have been used as well as a mixed format (i.e., two or three sessions in a group format followed by a switch to an individual format). More recently, a self service video format has been reported (ID 24). In this format, parents simply come to the clinic at their convenience, check out one of a programmed series of videos, and view it in a clinic room. With the exception of two studies (IDs 10 and 24) there has been no systematic effort to compare the various formats.

Paternal involvement refers to whether or not the father is involved in the treatment program. Amazingly, only two studies (IDs 17 and 25) have directly examined this question. In the Firestone, Kelly and Fike (1980) study (ID 25), a parent training program was offered to either both parents or mothers alone. The results showed that the both parents group did better than the mothers alone group at posttest but not at followup on a parent report measure of conduct problems. Adesso and Lipson (1981) (ID 17) established three treatment groups (mother alone, father alone, and both parents) and a control. Their results, based on only four families per group, indicate no significant difference among the treatment groups. While the results indicate a conclusion of no incremental effect for including the father in parent training, the small size of the Adesso

and Lipson study and the reliance on parent report measures in the Firestone et al. study suggest very strongly the need for a larger and better designed study.

Although the father participation issue remains unresolved experimentally, the reviewed studies did resolve the issue procedurally. One procedure was to systematically exclude fathers. This was done by studies 9 through 14 and 17, 20, and 21. The other strategy was to include fathers if they were willing to participate. This was done by the remaining studies except for study 16 where fathers in two parent families were required to participate.

While the question of father participation is the "up front" question, the significance of the intact status of the family overlaps with the role of the father. In all studies except the two studies examining the role of fathers, both one and two parent families were mixed together. Thus, a better design would decouple father participation from the intact status question by comparing intact families varying on father participation to control families and to single mother families.

The length of the program, as defined by number of sessions or weeks of treatment provided to families was addressed in the reviewed studies in one of two ways. One procedure was to provide a nominal number of sessions (usually 8 to 12) sufficient to help families to consistently utilize the program. Families that are successful at that point are terminated. For some families

additional sessions were indicated or requested. While exact percentages are not reported in a given study, it appears that about 25% of families require additional sessions (Patterson, Cobb & Ray, 1973). Apparently, the additional sessions continue until the family reaches its goals or the therapist and the family decide to stop the treatment. This procedure was used in studies 2 and 22 for certain, and, possibly, studies 1 and 3 through 7 as well. The second procedure is to provide a fixed number of sessions ranging from six to ten. In these programs there is no mention made of the families receiving additional services. This procedure was apparently used in the remaining studies (8 through 21 and 23 through 25).

Adjunct services refer to program components which address the marital relationship, individual functioning, provide education in social learning theory, or referral to outside agencies for these services. That such services may be needed by some percentage of families is indicated by both clinical observation and research data (Patterson, Cobb & Ray, 1973). Clinically, Patterson has reported that in some families the effectiveness of the core program is systematically undermined by co-existing marital issues or by the problems of an individual parent (Patterson, Ray & Shaw, 1968). Research data indicate that poor outcomes in parent training programs are associated with maternal psychopathology (Dumas, 1984), maternal isolation (e.g., Wahler, 1980), and marital issues (Patterson, 1982).

Three approaches have been taken to the provision of adjunct services. One approach, typified by early work at Oregon Social Learning Center, has been to provide these services or refer to these services on an as needed basis. The clinical reasons for doing this are quite clear. The consequences for research in this approach, however, are daunting. A clean summary of effects becomes difficult as each family must be treated separately - a difficult issue in a group design. The second approach, typified by Forehand and colleagues, has been to systematically examine the effects of adding a specific adjunct such as parent enhancement training (ID 14) or self control training (ID 12) to the core program. The third approach, typified by current Oregon Social Learning Center work and Sayger, Horne, Walker and Passamore (1988) (ID 24), has been to redefine the core program to include training in communication and problem solving to improve the parenting and marital relationships.

Effectiveness

As indicated earlier, several reviews of the parent training literature have been conducted (e.g., Berkowitz & Graziano, 1972; Johnson & Katz, 1973; O'Dell, 1974; Moreland et al., 1982) In general, these reviews have concluded that parent training is an effective treatment approach for children with conduct problems. Since the most recent review (Moreland, et al., 1982) this general conclusion seems to have been reflected in the dramatically decreased number of

parent training reports that have appeared in the literature. Those studies that have appeared have evaluated new treatment formats (Webster-Stratton, Kolpacoff & Hollinsworth, 1988); compared successful vs unsuccessful families (Dumas, 1984 and Webster-Stratton, 1985); or evaluated a family systems model of parent training (Sayger, Horne, Walker & Passmore, 1988). The metahypotheses about parent training outcome (significant behavior change at posttest, significant behavior change which persists at followup, and increased efficacy when compared to alternative treatments) all seem to have been settled in parent training's favor.

Future Directions and Current Work

There is extensive work remaining to be done in the parent training area. One important area of work is typified by current work at Oregon Social Learning Center. In this work, (Patterson & Chamberlain, 1988) the parent training enterprise has been reconceptualized as an interactional process between parent(s) and therapist. From this reconceptualization has come an interest in therapist behavior and in process models of parent training.

The second area of work is in applying parent training to programs targeted at reducing or preventing conduct problems and aggression in populations of high risk children and preadolescents. While the evidence of parent training's efficacy in clinically referred and presumptively motivated populations has been demonstrated, questions remain as to

whether parents of children not referred but at high risk will perceive the benefits of parent training programs and manifest interest in participating in and using such a program.

The third area of work concerns an examination of the role of the father in parent training interventions. The involvement of the father in outreach interventions or prevention programs is of particular importance. The very basic questions that must be addressed concern possible hindering or facilitating effects which efforts to include the father might have on participation decisions, adherence to the intervention program, and the overall effectiveness of the program. While, as indicated earlier, the role of the father has been examined in two studies, both studies suffered from a number of design deficiencies. Most notable was a very small sample size in the Adesso and Lipson (1981) study and a reliance on a single parent report measure in the Firestone et al. (1980) study. Thus, a study incorporating larger samples and a more refined outcome measurement technology is overdue.

The current study is an evaluation of the community based outreach intervention program described by Zucker and Noll (1987) and implemented as the Michigan State University Prevention of Conduct Disorders Project and now known as the Michigan State University Multiple Risk Outreach Program. This program is a community based outreach intervention program that was offered to the parents of a high risk

population of young male children of alcoholic fathers.

Families with alcoholic fathers and preschool age male offspring were chosen as the target population because of the substantial research literature which has linked parental alcoholism and co-occurring diagnoses such as antisocial personality and drug dependence or abuse to elevated levels of problems of conduct problems and aggression in the offspring. Reviews of selected areas of the delinquency literature (e.g., Loeber & Dishon, 1983) and studies of the developmental stability of aggression (e.g., Olweus, 1979) suggest that aggression as a trait is quite stable and that an early onset and/or high levels of aggression and conduct problems places a child at substantial risk for later and more serious problems with delinquency.

The intervention program offered to the families involved a parent training module based on that developed at Oregon Social Learning Center for the reduction of child conduct problems and a marital/family component focusing on marital and parenting relationship issues and other clinically significant issues such as damaging levels of drinking or drug use. The intervention program was offered in two formats to permit an examination of the role of the father in such programs. In the first format, only mothers were asked to take part. In the second format, both mothers and fathers were asked to take part. While the mother only format has some relevance for single parent families, this

intervention model better represents a situation where the mother is receptive to the need for intervention but her husband may be indifferent or even hostile to it. Thus, the question is whether significant gains can be made in working just with the mother and if the techniques taught to her can be passed on to the father. The both parents format represents a more traditional approach to family intervention, but also one which may have significant costs in terms of participation and compliance.

The present report examines the effect of the intervention as it pertains to child outcomes. Other reports will subsequently examine the program effects upon the parents.

Hypotheses

The following hypotheses were proposed for this study. Note that the hypotheses are stated in specific terms for the Child Behavior Checklist for illustrative purposes only. For the analysis, these hypotheses are tested for each measure of conduct problems.

A. Families receiving the intervention will show significantly lower levels of conduct problems as measured by the Aggressive subscale of the Child Behavior Checklist at posttest than will families who have not received the intervention.

B. Families where both parents were involved in the intervention program will show a significantly lower level of conduct problems as measured by the Aggressive subscale of the Child Behavior Checklist at posttest than will families where only the mother was involved.

Method

Subjects

The subjects for this study were 104 families who had been recruited to take part in the Michigan State University Prevention of Conduct Disorders Project (Zucker & Noll, 1987). This project, which later became identified as the Multiple Risk Child Outreach Program (Zucker et al., 1990), was initially introduced to families as the Michigan State University Family Study, "a study of family health and child development." To be included in program, potential subject families had to meet the following criteria: 1) The father had been convicted for driving while impaired (DWI) or driving under the influence of liquor (DUIL), and either had a blood alcohol concentration (BAC) of at least 15 mg per 100 ml (0.15%) when arrested and no prior DWI or DUIL arrests or a BAC of at least 0.12% BAC and multiple DWI or DUIL arrests. Subsequently, the father had to also meet the Fieghner diagnostic criteria (Fieghner, Robins, Guze, Woodruff, Winokur & Munoz, 1972) for probable or definite alcoholism. With the exception one family out of over 200 families recruited to date, the BAC criteria have produced a sample who met the probable diagnosis level with approximately 89% also meeting the definite diagnosis level. 2) The father was the progenitor of one or more male

children who were between the ages of 3-0 and 6-0 years and who were living in the home at the time of initial contact. 3) The father was coupled with the child's biological mother, by marriage or otherwise, in permanent relationship at the time of initial contact. 4) A diagnosis of maternal alcoholism or other maternal psychiatric disorder did not render a potential family ineligible. 5) A paternal psychiatric diagnosis in addition to alcoholism did not render a potential family ineligible (Zucker et al., 1990).

The mean age of the parents at the first assessment contact was 29.3 years for the mothers and 31.4 years for the fathers. A substantial proportion of parents had not finished high school: 16% of the mothers and 21% of the fathers. However, a larger proportion of parents had post high school education - either involving some college or in a vocational-technical school: 42% of mothers and 38% of fathers. The mean Occupational Prestige score (Duncan TSEI2) was 29.7 (Stevens & Featherman, 1980) which is in the skilled range of occupations (e.g., real estate appraisers, opticians, and bookkeepers). The median family income was 24,000 dollars.

In 99 of the 104 families in this study, the biological parents were married to each other. The mean duration of the marital relationship was 7.3 years. Of the remaining five families, four were cohabiting. In the remaining family, the biological parents had divorced and the target child resided with the biological father and the stepmother (The family

was, in fact, allowed to take part by recruitment error. Only at the very last stages of the assessment was it discovered that the woman functioning as the target child's mother was, in fact, his stepmother, but been involved in a coupled, parenting capacity since the boy was 18 months old. Given the heavy involvement from early on in the child's life, the virtual lack of involvement of the boy's biological mother, the child's acceptance of his stepmother as his parent, the sustained marital relationship, and the fact that all data had already been collected, in this one instance, it was decided to go ahead and retain the family in the intervention phase of the study.) The mean number of children was 2.1. The mean age of the target child at first assessment was 4.4 years.

On a standardized screening instrument, the Child Behavior Checklist (CBCL) (Achenbach & Edelbrock, 1983), 27% of the mothers and 30% of the fathers reported the target child to have clinically significant levels (T score of 64 or more) of behavior problems overall. These problems were primarily in the externalizing domain rather than the internalizing domain as 13% of mothers and 12% of fathers reported clinically significant levels of externalizing problems but only 2% of mothers and 6% of fathers reported clinically significant levels of internalizing problems. Aggressive behavior was the principal concern as 22% of mothers and 18% of fathers reported their sons to have clinically elevated levels (T score 70 or more) of

aggression on the CBCL Aggression subscale. Turning to the social competence domain, 13% of mothers and 11% of fathers reported clinically depressed levels of social behavior on the CBCL Social subscale.

Recruitment Procedures

Families were recruited into this study in the following manner. Under a cooperative agreement with all district courts in the mid-Michigan Clinton-Eaton-Ingham tricounty area and with one court in Shiawasee county, two procedures were implemented to make contact with potential families. First, court personnel reviewed all drunk driver or alcohol related case files in each of the courts for a period ranging from currently active to those involving the courts within the past one to two years. When a case was found that met the relevant selection criteria, the caseworker asked the client about his willingness to discuss possible participation in a study of "family health and child development". Regardless of whether the caseworker asked his/her client in person or by telephone; a prepared statement (Zucker, Noll & Fitzgerald, 1987-1992) was read to the client. Briefly, the statement asked the client for permission to release his name to the Michigan State University Family Project. Reassurance was given that his decision would not affect current or future legal proceedings involving him, that the project had no connection with the courts, and that he would be compensated for his participation in the study should he and his family

agree to take part.

Those men who gave permission to release their names were then contacted by Michigan State University project staff and asked for a time when a staff person might meet with he and his wife to explain the project to them. If the couple expressed hesitation or seemed reluctant to meet with staff person, the staff person acknowledged the concerns and, instead, sought to maintain contact so that the family might be approached at a later date.

At the meeting, the staff person described the project's interest in family health and child development and in tracking the development of young male children. If the family had more than one son in the appropriate age range (three to six years), the child that would be the focus of the study (i.e., the target child) was selected by a coin toss. If a family had been randomly assigned to one of the two intervention format variations, the staff person also stated that a child focused parenting program might be offered at a later date. However, no promises or offers of treatment were made to a family at this juncture, nor was a family recruited on the basis of their potential treatment involvement. If a family had been randomly assigned to the control group, the staff person did not mention the child focused parenting program to the family. Lastly, the staff person discussed the financial compensation for participating in the initial assessment phase with the family (See Appendix A for the payment schedule). Again, if

a family hesitated or otherwise expressed an unwillingness to participate, the staff person offered to check back "at a later time" rather than pressing the family for a decision.

Using the above procedures, the recruitment statistics for the first 100 men recruited are as follows. The court files of 11,769 men from six district courts were reviewed. A total of 150 men (1.3%) were identified as meeting project criteria. When approached by their probation officer, 111 (74%) gave permission for their names to be released to the project. Of the men giving permission to be contacted, 100 (89.9%) agreed to participate in the study. In addition, 12 men were identified as meeting the selection criteria for this study when they were recruited as community control families for the MSU Longitudinal Study (Zucker, Noll & Fitzgerald, 1987-1992), a parallel etiologic study being carried out at the same time and which used a neighborhood survey methodology to locate nonalcoholic control families living in the tricounty area. During that work a group of alcoholic families were uncovered that were judged appropriate for the intervention study because they had recent alcohol related driving offenses that had occurred during the life of the target child. Because their offenses had occurred either outside the tricounty area or at a time before the intervention study had started, they had been missed by the formal file reviews used as the screening net for project recruitment. Given that these families met all selection criteria except for how they had been located, the

decision was made to recruit them into the intervention study as a way of speeding up the recruitment flow. All 12 families subsequently agreed to participate. Thus, a total of 112 families agreed to take part in the intervention study.

Following a more thorough screening of the 112 families recruited for this study, it was found that eight of the families actually did not meet the selection criteria and were, therefore, dropped from the study. Most frequently, the circumstances causing the family to be declared ineligible were that the target child was not the offspring of both parents or that the target child was over six years of age by the time the initial contact was made. Thus, the final sample for the intervention study consisted of 104 families.

Intervention

Overview. The intervention regimen (Zucker, Noll, Kriegler & Cruise, 1986; Zucker et al., 1990; Zucker, 1991) employed was a modification and extension of Social Learning Therapy, a behavior modification strategy developed for the treatment of older aggressive/antisocial children by Patterson, Reid, and colleagues at the Oregon Social Learning Center (Patterson, Reid, Jones & Conger, 1975). The standard OSLC intervention consists of a series of programmed steps focusing on child non-compliance, parents' inconsistent monitoring and ineffective disciplinary practices, and family problem solving skills. Like the OSLC

program, the MSU regimen specifies that intervention work move through an ordered series of five stages, termed 'modules' in this report. These modules are, in order: Initial Interview, Tracking, Contracting, Timeout, and Problem Solving.

The program offered by MSU extends this approach to non-referred families with very young children and includes additional attention to parents' alcohol and drug problems, marital functioning, and other parent issues. The planned length of treatment was 28 sessions. Sixteen weekly sessions focused initially on child management skills and then moved to other family issues in the problem solving phase of the protocol. Weekly sessions were followed by 12 biweekly sessions devoted to supporting and reinforcing child management skills, as well as continuing work on solving other family problems. Between session phone contacts and the availability of home-based treatment for families who needed it were both used to help families stay engaged in the work.

Although the OSLC parent training protocol was utilized as the core of the child intervention, the MSU intervention protocol also had some significant differences in both clientele and implementation. (a) The program was introduced as an educational package rather than as treatment; the program was described as one which would enhance parent-child communication and improve parent-child relationships. Nevertheless, once the work began the framework of the

program was identical to that one would carry out in a clinical setting. (b) The families were neither self-selected nor court referred, and some needed to be convinced of the usefulness of the program. (c) Typically, fathers were initially much less convinced of the need for the program. Because of the father's seeming reluctance, much of the early work with the families simply involved finding some common ground around which the intervention could legitimately proceed. (d) Family conflict and marital dissatisfaction were frequently encountered. In particular, a common source of wife dissatisfaction was her spouse's drinking related difficulty. Thus, any effort to work with the children -- even in the early sessions -- had to also confront this problem which ranged on one hand from the wife's anger at her husband's drinking to the husband's dissatisfaction over his spouse's nagging on the other.

The rationale for the more extensive (relative to OSLC) family intervention component stems from both the earlier OSLC work and from work with alcoholic adults. Almost two decades ago, Patterson, Cobb and Ray (1973) made the observation that in some families the effectiveness of the core social learning therapy program is systematically undermined by the pre-existing marital issues as well as problems of individual parent psychopathology. More recent research data confirm this observation. Poor outcomes in parent training studies have been linked to maternal psychopathology (Dumas, 1984), maternal isolation (Wahler,

1980) as well as marital difficulty (Patterson, 1982).

Another body of research focused on the change of alcoholic adults makes a similar point. For instance, O'Farrell (1987) notes that the advent of family and maritally based approaches to the treatment of alcoholism in the mid-70's derived from the observation that individually based programs simply could not sustain the desired effects.

Given the multiproblem nature of the families to whom this protocol was being directed, a significant focus upon non-child problems (of each member of the couple individually, as well as the level of the family as a system) was seen as a vital element in being able to successfully implement the prevention protocol.

Initial Interview. The purpose of this module was to establish a working relationship between the therapist and the parents within which the parents feel at ease and have hope that change is possible. (Note: two parents are implied here for ease of reading only.) This work was begun by presenting the program in such a manner that the parents' hopes for and belief in the possibility of a better relationship with their children was possible. While the intention was to arouse the parents' hopes, it was important to connect their hopes to the idea that the desired changes would occur from their effort rather than through some sort of "magic". Secondly, the intervenor asked the parents for the story of their interaction with the target child. The task of the intervenor was to listen to their story and ask

sufficient questions to expand the story into the behavioral specifics so that the intervenor could understand the repertoire of actions underlying the parent's words. The specific items that were to be focused on and elicited during the story telling were indications of their parenting skills, the themes and belief systems of the parents, and the specifics of parent-child interactions. As a background to this work and sometimes as a base from which to initiate discussion, the intervenor had already consulted the parents' Child Behavior Rating Scale forms and knew the areas of common concern pertaining to child misbehavior. With this information, the intervenor could connect the intervention to the parent's hopes and goals.

Tracking. This module consisted of two subparts: pinpointing and tracking. Pinpointing refers to the process of eliciting behaviorally specific descriptions of the child's behavior - both positive and negative - from the parents. Thus, as the parents talked about their child and his behavior, the task of the intervenor was to assist them to make clear and precise descriptions of the behavior. Secondly, the intervenor helped the parents to assess the importance of the different problem behaviors. As this importance emerges, the intervenor moves to tracking. Tracking refers to the process wherein the parent selected one or more problem behaviors and, as a homework assignment, counted and recorded the occurrence of each behavior within a specified time interval each day. To successfully do

tracking, the intervenor modelled and coached the parents in the following three tasks. First, the intervenor assisted the parents in selecting one (preferably) or more negative behaviors and the selected behavior's prosocial opposite. Usually, the selected negative behavior was "not minding" and its prosocial opposite was "minding" (beginning to comply with a request within 10 to 15 seconds after the request is made). Second, the intervenor taught the parents how to track the selected behavior pair. That is, how to make a request, calmly observe the time interval and then label the child's response as 'minding' or 'not minding'. Third, the intervenor assisted the parents in finding a time to do the tracking assignment and shows them how to record the results of their tracking on the Tracking form (see Zucker, Noll, Kriegler & Cruise, 1986).

Contracting. The goal of this module was to assist the parents and child to develop a contract with each other wherein the target child agreed to perform certain age appropriate prosocial behaviors and/or chores and the parents agreed to reward criterion performance with material and social reinforcers jointly agreed to by the parents and child. The purpose of the contract was to increase prosocial behavior by explicitly providing a context where the behavior could be recognized and rewarded. This module is composed of four tasks.

The first task was for the parents to identify an age appropriate behavior (e.g., brushing teeth); an age

appropriate chore (e.g., picking up toys); and, typically, minding. As with tracking, both the behavior and the chore were broken down into very specific behavioral subcomponents. The purpose of this was to permit the child to know specifically what is expected from him and for the parent to know when their child had performed the task.

The second task for the parents and the intervenor was to give point values to the behavior(s), the chore(s), and the minding. In assigning point values, the intervenor guided the parents to select point values so that the child (and the parents) could succeed on this first contract, but which also reflected the relative importance of behavior, chores, and minding to the parents. For the chore and the behavior, the point value of the behavior or chore was distributed among its subcomponents. Thus, if a chore or behavior was given a value of 20 points and it had five subcomponents, then each component was worth four points. For minding, the parents selected a criterion level of minding (from 50% to 75% "minds") for which the child would get all the points. Lastly, the contract could include a bonus provision for special performance. After the point total of the behavior, chore, and minding had been calculated, the intervenor and the parents then set the total number of points the child had to earn each day to receive the privilege of selecting a reward. This criterion was recommended to be 70% to 75% of the total point value of the contract.

The third task for the parent and child with the assistance of the intervenor was to select the rewards for the contract. Broadly, the rewards needed to be age appropriate, of approximately equal value to each other, able to be given by the parents on a regular basis, and divided about equally between social rewards (e.g., reading a book or playing a game with a parent) and material rewards (e.g., money or a toy). Beyond these basic criteria, the essential task was to find activities, objects, and privileges that were especially meaningful to the child. Thus, his involvement was actively solicited for this task.

The fourth task was basically administrative in nature. The intervenor taught the parents how to administer and use the contract on a daily basis. This consisted of introducing the contract form or star chart (see Zucker, Noll, Kriegler & Cruise, 1986) for recognizing performance, finding a time when the parents could review the contract with the child, and assisting the parents in explaining the contract to the child.

Timeout. The purpose of the Timeout module was to teach the parents how to implement "time out from social reinforcement" procedures to reduce negative or undesired behavior. The Timeout module was composed of six tasks. The first task was for the intervenor to understand the specifics of the family's disciplinary practices and the effectiveness of such practices. While the full specifics usually didn't emerge in the first discussion, the

intervenor did not proceed to the second task until he/she had a good understanding of how the child was disciplined. After the intervenor had an understanding of the present discipline practices, he/she then introduced and taught timeout as an alternative to their current practices. This was the second task. The third task was to assist the parents(s) to find a timeout location that was safe or could be made so and was also "boring" - without stimulation value. If there were two or more children, a second timeout area was also selected.

The fourth task was to teach the parents to implement timeout. Briefly, the procedure was as follows: when the child was misbehaving, the parents were instructed to state the rule being broken, and then request that the child stop the activity. If the child continued the activity, the parents should label the refusal as a "not mind", as with tracking, and then request that the child go to timeout for a period of one minute for every year of the child's age. If the child did not comply, the request was restated, but with an additional minute added to the timeout interval for noncompliance. This procedure was repeated until the timeout period had reached a total of eight minutes. At this point the parents offered the child the choice of going to timeout for eight minutes or losing a privilege from a previously compiled list of privileges. Regardless of the child's choice, the discipline situation was considered to have been resolved at this point.

The final task in the Timeout module was for the intervenor to visit the family home. This session was done only when the parents were ready to begin using Timeout. The purpose of this visit was twofold. First, it permitted the intervenor to see the timeout area and for the parents to demonstrate how they planned to implement timeout by, for example, role playing Timeout with the children. Thus, the intervenor could offer suggestions about the practical arrangements and clear up any misunderstandings about the setting or procedures. Second, the visit served an explicit social function as it permitted the family to host the intervenor and to show off the family's physical environment.

Problem Solving. The purpose of the Problem Solving module was to teach specific problem solving and communication skills to assist in resolving disagreements between parents, between parent and child, or between parent and others. As such, the module served two different functions. It taught parents a set of techniques that would allow them to deal with and resolve conflicts that existed within the family. It also served as a context in which to explore longer term marital and family difficulties that surfaced as the intervention work proceeded.

This module was composed of three tasks. While these tasks have the same structure in both the Mother Only and the Both Parents formats, there are some procedural differences brought about by the fact that both parents are

involved in one of the intervention formats while only the mother was involved in the other intervention format. The description that follows will detail the procedures for the Both Parents format; when the procedures differ in the Mother Only format, these differences will be noted.

The first task was for the intervenor to engage the parents in discussion of how they currently resolve disagreements, disputes, arguments, etc. As the intervenor developed an understanding of these interactions he/she could begin to teach the new procedure by referring to instances where he/she had disagreed with the parents and how these instances were resolved. With this discussion as a background, the intervenor taught the three components of Problems Solving: active listening, generating alternatives, and evaluating solutions.

Briefly, the procedure for teaching these skills was as follows. One parent took the role of the problem stater, and the other parent took the role of the active listener. Later, these roles were reversed to give each parent practice with both roles. Using a low conflict level task to minimize emotional arousal, the problem stater presented his/her perception of the problem in a form that recognized the shared nature of the problem and the desired outcome. The active listener responded by first paraphrasing the statement and then stating his/her own response to the problem. When both parents had some proficiency with these active listening skills, they were asked to practice them at

home before the next session. In the mother only condition, the mother initially played the active listener while the intervenor played the problem stater. After the mother had gained some experience with active listening, the roles were reversed so that the mother could have experience with problem stating.

The third task was to teach the next step in problem solving - generating new alternatives. Using the active listening skills taught previously, the couple chose a low priority problem and developed an understanding of each other's perceptions and the common goal. The intervenor then asked each parent, in turn, to suggest something they could do about the problem while the other parent remained silent. Neither parent was allowed to criticize a previously offered solution. When the intervenor was satisfied that the parents had the skill in place, he/she asked them to practice at home before the next session. In the mother only group, the mother, playing herself and her husband, sequentially, was asked to develop a list of possible solutions.

The fourth task was to teach the final step in problem solving - evaluating solutions. Rather than a low priority problem, the parents were requested to use an actual problem. As before, the parents used previously acquired skills to define the problem and develop a list of possible solutions. When this had been done, the intervenor asked each person to strike off any solution that was not acceptable to them. No explanation needed to be given for

striking off the solution. The process continued until the parents had chosen a solution acceptable to both of them. If all the solutions were struck off, the parents were asked to create additional solutions. As before, the parents were requested to practice the skills at home before the next session.

Adjunct Services. Referrals to an existing community mental health or alcoholism treatment agency were made on those occasions where the parental and marital work were judged to be too chronic and recalcitrant to be manageable within the framework of the existing intervention. However, the first line of work was to attempt to deal with the gamut of family problems raised during contact.

Treatment Setting

The physical setting for the intervention was generally the Department of Pediatrics at the Clinical Center at Michigan State University. However, if there were circumstances that prevented the parents from coming to campus (e.g., financial, legal -- loss of drivers license because of a DWI conviction, or skill -- only one person in the family could drive), the intervenor met with the parents in the home. In addition, if concerns about the family's ability to maintain regularly scheduled appointments at the university existed at the initial staffing of the family that was conducted prior to their being offered the intervention, then the intervention was conducted in the home. Overall, 45% of the families were seen at their

residence for at least part of the intervention protocol. Slightly more Mother Only format families were seen at the clinic (41%) than were Both Parent format families (50%), but the difference was not significant.

Treatment Staff

The treatment staff were four male and five female doctoral level clinical psychology graduate students, two female masters level staff members from the local Community Mental Health center, and one masters level social worker. Thus, all brought a very substantial background of clinical involvement to their work with this program. In addition, each therapist received approximately 20 hours of training in the treatment paradigm consisting of a review of the protocol content and role playing and discussion of potential problem situations prior to the first client contact. In addition to the initial training, each intervenor received four hours of group supervision each week from one of two licensed doctoral level psychologists. To avoid a systematic confounding of intervenor with supervisor, halfway through the work commitment for each intervenor, supervisor assignments were exchanged.

Procedure

After a family had been recruited into the program, but before they had completed an extensive assessment of child behavior and parent and family functioning (Zucker, Noll & Fitzgerald, 1987-1992), families were randomly assigned, initially, to one of three groups: Mother Only format, Both

Parents format, or No Treatment Control. However, because high ineligibility and attrition rates in the two intervention groups made meeting contractual obligations of the granting agency difficult, random assignment to the Control group ceased after it had reached its contractually agreed upon size. Thereafter, random assignment to either the Mother Only format or the Both Parents format continued without alteration.

No significant differences between the three groups of families on demographic, parent functioning, and child behavior variables were found in Zucker, Maguin, Noll, Fitzgerald, and Klinger's (1990) analysis of the first 99 families in the study. These analyses were repeated here for the full sample of 104 families. Again, no differences were found (see Appendix B for detailed results). Thus, the random assignment procedures were satisfactory.

At the conclusion of the initial assessment protocol, families in the two intervention groups were assessed for intervention eligibility. To be eligible, a family must have been intact at the completion of the initial assessment and lived within a 30 mile radius of the university. Eligible families were then randomly assigned to treatment staff until each staff member reached his/her case load. After all case loads were full, families were simply assigned to the next available staff member.

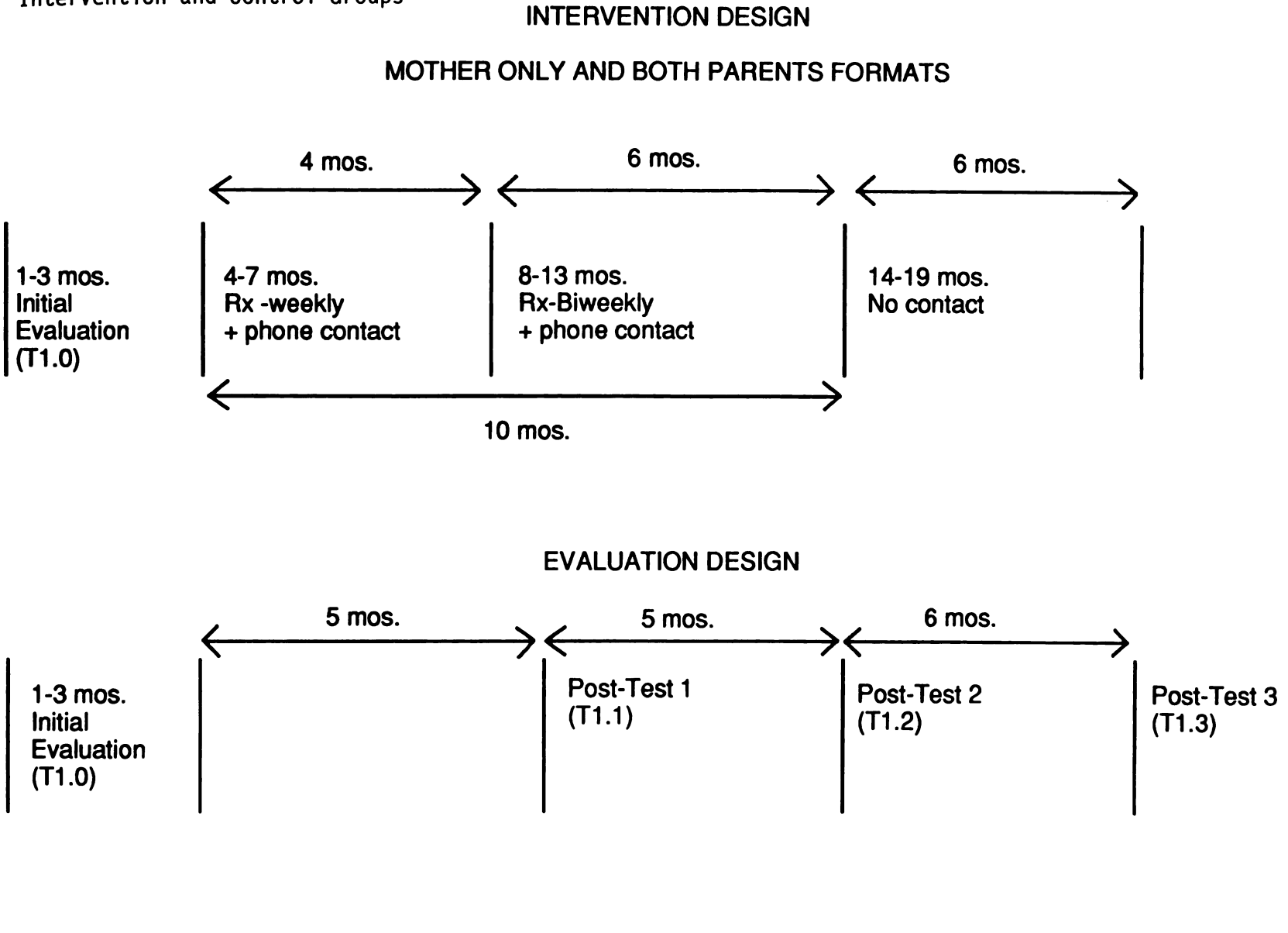
Once a family was assigned for intervention, the program staff arranged a meeting where the intervenor and the family

were introduced to one another. Following this introduction, the family's therapist member assumed responsibility for the family's continued involvement in the program.

Families remained eligible for the intervention provided they remained within the 30 mile radius and remained intact. Families who became ineligible for either of the above reasons were not allowed to continue in the intervention regimen. If the family indicated an interest in continuing their work, a referral to another agency was made whenever possible. However, every effort was also made to persuade families who became ineligible for the intervention to remain in the intervention study and complete the schedule of posttest assessments. In almost all cases, these efforts were successful.

The intervention program was divided into two phases (see Figure 2). During phase I, the intervenor met weekly with the family for a period of approximately one hour and contacted the parents (i.e., mothers in the Mother Only format and both mothers and fathers in the Both Parents format), one or more times by telephone between sessions. During Phase I, the staff member was expected to complete the Initial Interview, Tracking, Contracting, and Timeout modules. Phase I was terminated when the following conditions were met. 1) Four months had elapsed since the date of the first session, there had been a minimum of 12 sessions, and the timeout home visit had been completed; or 2) sixteen sessions had been completed regardless of whether

Figure 2: Schedule of Initial Assessment, Intervention Program, and Posttest Assessments for the Intervention and Control Groups



or not the timeout home visit had been made.

During phase II, the therapist met with the parents every two weeks and contacted the parents one or more times per week by telephone for a period of 26 weeks. During these sessions, the intervenor was expected to complete the Problem Solving module with the family. Thereafter, the time was to be devoted to refining the parent's use of the skills taught in Phase I, attending to persistent problem situations, applying the techniques to other children, and addressing longer term problems of conflict that existed for the couple. Very frequently, this meant addressing longer term issues of the father's drinking and the viability of the marriage.

Posttest 1 (Zucker & Noll, 1984-1987) was conducted between the first and second sessions of Phase II for the intervention families, and at a nominal 26 weeks after initial assessment completion for the Control families and for ineligible Intervention group families. Because of lags in assigning treatment staff to families and because of families starting in the intervention program and then missing appointments, the actual interval from initial assessment completion to Posttest 1 for Intervention families was also approximately 26 weeks. The actual interval was regularly monitored by project staff and adjustments were periodically made in posttest scheduling for Control and ineligible Intervention group families so as to maintain an average interval of 26 weeks. Posttest 2 was

conducted at the conclusion of the intervention program for intervention families and at a nominal 26 weeks after Posttest 1 completion for all other families. Posttest 3 was conducted at a nominal 26 weeks after completion of Posttest 2 for all families. Families were paid for completing the posttests according to the compensation schedule described in Appendix A.

All posttests were conducted by project staff not involved in the intervention program with that family. Thus, a complete separation of intervention and assessment was maintained.

Ordinarily, both parents completed the posttest instruments on the target child. However, in divorced or separated families the following criteria were used to guide data collection. Posttest instruments were completed by the custodial parent or by the parent with whom the child normally resided in the case of joint custody situations. If the noncustodial parent had regular contact (defined as custody on at least two or more weekends per month or the equivalent) with the target child over the posttest interval, the noncustodial parent also completed the posttest instruments on the target child. Otherwise, parent data pertaining to the target child was not collected or, if collected for program continuity reasons, was not used. In the few situations where the custodial parent had remarried or was involved in a committed, cohabiting relationship with a new partner, the new partner was asked to provide data on

the target child only when the relationship was of at least nine months duration. Of course, target child data continued to be collected from the noncustodial parent per the criteria described above. New partners of noncustodial parents were not included in the data collection process.

Instruments

Child Behavior Checklist-Revised (CBCL-R). The CBCL-R (Achenbach & Edelbrock, 1983) is a comprehensive assessment of both behavior problems and behavior competencies of children aged 4 to 16 as described by the child's parents or primary caretakers. Behavior problems are assessed via a set of 118 items sampling a broad range of negative child behavior. Respondents are asked to rate the occurrence of each item within the past six months on a three point scale (0 = Not true, 1 = Sometimes true, and 2 = Often true). The child's social competencies are assessed by a set of 16 items which sample three domains of positive child behavior - activities, social, and school. Within each domain (e.g., activities), the respondent is asked to report the number of involvements and the quality of the involvements. The score for a particular domain reflects, then, both the degree of involvement and quality of involvement. One score is computed for each domain by summing across items in that domain. Because four to five year old children typically are not yet involved in school activities, the CBCL-R does not provide scores for this age group.

Maguin, Hunter, Ham, Fitzgerald and Zucker (1991) examined the CBCL-R narrow band factor analysis and the resultant scales developed by Achenbach and Edelbrock from the perspective of content analysis and argued that the factor analytically derived scales were exceptionally broad in focus. They proposed that a tighter, more specifically focused content analysis of the CBCL-R items was preferable for measurement purposes. Subsequent analysis identified 30 discrete clusters of items. Of the 30 clusters, 10 were used in this analysis. The clusters used were Aggressive, Cruel, Destroys, Obeys, Theft, Supervise, Anger, Rude, Hyper, and Shy. The alpha reliability of these clusters range from .78 (Anger) to .50 (Shy). Tables 12 to 23 in Appendix C presents the item descriptions of the CBCL-R clusters used in these analyses.

Connors Parent Questionnaire-Modified (CPQ-M). The CPQ-M is a modification of the 93 item Connors Parent Questionnaire (CPQ) (Connors, 1973) [Horn, personal communication, April, 1988]. The modifications consisted of deleting selected items and rewording of others. The response format was left unchanged. The CPQ-M is also quite similar to the 48 item Revised Connors Parent Questionnaire (RCPQ) (Goyette, Connors & Ulrich, 1978). Compared to the CPQ, the CPQ-M has 44 items that are exactly the same, two items that are very similar (11 and 15), four items that are similar (13, 31, 32, and 34), but not highly so, and one completely new item (17).

The 10 clusters developed by developed by Maguin et al. (1991) in their analysis of the CPQ-M items were used in this study. These 10 clusters were Aggression, Defys, Lies, Nervous, Distract, Excite, Cries, Angry, Shy, and Insecure. The alpha reliability ranged from .83 (Aggression) to .46 (Insecure). Tables 12 to 23 in Appendix C presents the item descriptions of the CPQ-M clusters used in these analyses.

Parent Daily Report-Modified (PDR-M). The PDR-M (Noll & Zucker, 1985b) is a revision of a same-named instrument developed at Oregon Social Learning Center (OSLC) (Chamberlain, 1980). As reported by Chamberlain, a PDR was developed at OSLC to provide a measure of low frequency behaviors (e.g., stealing, fighting, or firesetting) occurring in the home with higher reliability and ecological validity than conventional parent report instruments (e.g. Child Behavior Checklist). This was done by asking parents to report "yes or no" on the occurrence of a set of behaviors in the previous 24 hours.

The PDR developed for this study remains true to the principle of the original PDR (parent report of low frequency events in past 24 hours on a yes-no response format) while being completely revised as to domains covered and item wording within similar domains. Here, the PDR is a three part, 34-item questionnaire administered in a telephone interview to each parent on alternate days for six days (i.e., [Mo, Fa, Mo, Fa, Mo, Fa] or vice versa) resulting in three interviews with each parent. Part one of

the PDR consists of 12 items (22 questions, counting subparts) taken verbatim from the Child Behavior Rating Scale-Preschool Version (CBRS-P) (Noll & Zucker, 1985a). Part two consists of nine items (11 questions counting subparts) asking about contact time with child by self and spouse/partner (four questions), television viewing by child (one item), self mood (two items), use of praise or physical discipline with child (two items), and who was present at the evening meal. Part three consists of six items asking about a discipline interaction between the reporting parent and the child. The parent is asked to describe the interaction including the child's behavior, their discipline used on an open ended question, and rate on a ten point scale their anger level (anchor points: 1 = not angry, 5 = angry, and 10 = very angry) and the judged harshness or severity of the discipline they used (anchor points: 1 = not harsh/severe, 5 = harsh/severe, and 10 = very harsh/severe).

Maguin et al. (1991) found that the scales defined for the equivalent CBRS-P items also fit the data generated by those same items on the PDR-M. In all, four scales (Aggression, Anger-Talk, Anger-Leaves, and Polite) were developed for the PDR-M. Only the Aggression scale (alpha = .32) was used in this analysis because of the substantial measurement concerns discussed by Maguin et al. Table 13 in Appendix C presents the item descriptions of the clusters used in these analyses.

Child Behavior Rating Scale-Preschool (CBRS-P). The CBRS-P (Noll & Zucker, 1985) is an 84 item questionnaire concerning child behavior and is completed by both parents. The 84 items are divided into 49 desirable child behavior items (e. g., minds, shows affection, play preference [e. g., realistic role playing, fantasy roles, quiet games, active games] and appropriately expresses anger) and 35 undesirable child behavior items (e. g., pushes or hits, wets, interrupts, and inappropriately expresses anger). The questionnaire asks parents for two types of information: frequency and importance of changing the performance rate (i.e., increasing the performance rate for desirable behavior or decreasing the performance rate for undesirable behaviors). Frequency of occurrence is assessed first by asking respondents to rate each item on a seven point scale (anchor points: 1 = Never, 3 = Sometimes, 5= Often, and 7 = Always).

After assessing frequency, respondents were asked to use two different methods to indicate the importance of changing the performance rate for various of their child's behaviors. In the first method, respondents were asked to select and list in descending order of importance up to six items (behaviors) from the desirable behavior list which they would most like their child to do more often. Respondents repeated this procedure for the undesirable behavior list by selecting and listing up to six items which they would most like their child to do less often.

The second method for collecting the importance of change ratings was revised once. Originally, respondents rated the importance of change for each item on a four point scale (1 = Not important, 2 = Slightly important, 3 = Somewhat important, and 4 = Very important). After revision, these ratings are collected only for those desirable behaviors rated as a "1" or a "2" in frequency and for those undesirable behaviors rated as a "6" or a "7" in frequency. (That is, parents were asked to evaluate the importance of change only for those desirable behaviors that were initially reported to be infrequent, and for those undesirable behaviors that were initially reported to be frequent.) The importance ratings themselves are made on the same four point scale.

Maguin et al. (1991) found evidence for 13 clusters of items in his analysis. The clusters found are Plays Well, No Respect for Property, Hyper, Compliant, Anger-Talk, Aggression, Affectionate, Avoids Affection, Polite, Rude, Mental Games, Active Games, and Anger-Leaves. The reliability of the scales ranges from .86 (Compliant) to .48 (Anger-Leaves). Only the following nine scales are used in the present set of analyses: Plays Well, No Respect for Property, Hyper, Compliant, Anger-Talk, Aggression, Affectionate, Polite, and Rude. Tables 12 to 23 in Appendix C presents the item descriptions of the CBRS-P clusters used in these analyses.

Results

Intervention Participation

At the conclusion of the intervention program, intervention records were reviewed and families were assigned to one of the seven intervention disposition statuses shown in Table 3 (see Appendix D for a more detailed summary). Reasons for failing to complete or remain eligible fell into a number of quite different categories. Family geographic mobility was high in this population as evidenced by the fact that five (5%) project families became unavailable for continued work simply because they moved. Marital difficulty and instability were also very high as 12 families (12%) separated before the any intervention was offered. That is, they failed to meet eligibility criteria during the pretest period. Finally, six families failed to complete the initial (T1.0) assessment and, thus, were ineligible. Because all these reasons for noncompletion were extraneous to project goals, these families were not included in computations of the retention and dropout statistics. Thus, the baseline N is reduced to a total of 81 families, 26 families in the Mother Only format, 29 in the Both Parents format, and 26 in the Control group.

As shown in Table 3, 52 (64%) of the 81 eligible families either completed the full intervention program or,

for control group families, satisfied eligibility criteria throughout a parallel period. An additional seven families received partial treatment. In a number of these instances, the families indicated satisfaction with the program but insisted (sometimes with the agreement of the treatment staff) that the level of child problems was sufficiently low such that the substantial time investment demanded by the project was not warranted. These are not appropriately considered treatment failures, although they are not clear treatment successes.

Comparison of the two intervention formats indicated that requiring both mothers and fathers to participate exerts negative effects on participation rates -- only 41% of families in the Both Parents format completed the intervention vs 65% of families in the Mother Only format. Inspection of Table 3 suggested that the difference between the completion rates for the two intervention formats was the fourfold larger number of families in the Both Parents format who refused or did not engage. This conjecture was tested by crosstabulating those families who received complete or partial treatment against those families who refused or did not engage. The resulting test was significant, X^2 (1, N = 51) = 4.07, p < .05.

To facilitate comparisons of completion/dropout rates with the parent training literature (e.g., Forehand et al., 1983), dropout rates during assessment and intervention were recomputed using only thosefamilies who were assigned to

Table 3
Final Status of Families Enrolled in the Intervention Study

Disposition Status	Intervention Assignment: Mother Only	Both Parents	Control	Total
Ineligible for Intervention				
Separated before intervention offered	4	5	3	12
Began intervention then moved from service area	3	1	1	5
Family refused to complete T1.0 assessment	2	4	0	6
Subtotal	9	10	4	23
Eligible for Intervention				
Completed Intervention or remained eligible	17	12	23	52
Completed 5 or more sessions, then withdrew remaining intact (i.e., partial treatment)	3	4	0	7
Separated during intervention or between pretest and posttest 2	3	1	0	4
Refused intervention or completed 1 to 4 sessions or refused to complete posttests	3	12	3[a]	18
Subtotal	26	29	26	81
Total	35	39	30	104

Note: [a]Three families in the control group refused to complete posttests. Future followups are planned because the families agreed to being contacted at a later date.

either the Mother Only or Both Parents formats and who remained intact during both the initial assessment and intervention and continued to reside in the service delivery area -- a sample of 57 families. The dropout rate during assessment was 11% (six families). Counting the seven families who completed five or more sessions (partial treatment) before dropping out as failures gives a dropout from treatment rate of 39% and a rate of 26% if these seven families are counted as successes. Thus, the total dropout rate would be 49% if the partial treatment families are counted as failures or 37% if these families are counted as successes. Within the intervention formats, the overall rate was 32% in the Mother Only format and 63% in the Both Parents format.

To investigate whether there were differences between intervention families having different dropout statuses (failed to complete initial assessment, refused intervention offer, partial treatment, and treatment completion) on parent, family, and child characteristics at T1.0, a series of ANOVA's was performed. The detailed results are presented in Table 24 to 26 in Appendix E. The first set of analyses compared the four dropout status groups on just demographic characteristics (parent functioning and child composite variables could not be used because most the families who did not complete the initial assessment dropped out before these variable were scheduled to be collected). This analysis (see Table 24) found no differences between groups

on the demographic variables used.

The second set of analyses compared three groups of intervention families (refused offer, partial treatment, and treatment completion) on the full set of variables named above. The short summary of the results of these analyses is that no significant between group differences were found across the variables examined. Thus, while these groups of families may well differ from one another, they do not do so on the variables examined.

The preceding analyses pools families in the Mother Only format and the Both Parents format. While pooling is useful to gain an overall estimate of dropout status effects, it may obscure real differences attributable to the intervention format effects. In particular, the four times larger intervention refusal rate in the Both Parents format as compared to the Mother Only suggests that the two formats are not equal in some way. Although the ideal design is actually a two between factor ANOVA (Dropout Status and Intervention Format), the small N's for the Mother Only format factor rule out this design. Therefore, a series of ANOVA's comparing families in the Both Parents format who refused the intervention with families in that format who completed the intervention were performed on the same set of parent, family, and child characteristics at T1.0 as were used in the previous analysis. The results of these analyses are presented in detail in Table 26 in Appendix E. Again, no significant between group differences were found across the

variables examined.

Intervention Effects

Method. The effects of the intervention were assessed using a total of twelve different child behavior constructs. These constructs were selected because they measure different classes of behaviors that either would or would not be expected to be affected by the intervention program.

Each of the constructs used in this evaluation was taken from the work described by Maguin, et al. (1991). In that work, each of the constructs used in this analysis was developed and carefully evaluated according to the procedures for building hierarchical measurement models described by Hunter (1977) and Hunter and Gerbing (1982) to assure that the constructs meet the standards for unidimensionality. An overview of this work is presented to acquaint the reader with the procedure and nomenclature.

Each of the constructs used in this report is composed of from one to five clusters of items. Each cluster of items was developed by conducting a careful content analysis of each of the four child behavior instruments used in the study. The purpose of the content analysis was to identify and provisionally group together all items on an instrument which appeared to measure the same underlying construct. These provisional placements were evaluated in a confirmatory analysis according to the twin criteria of internal consistency and parallelism. Internal consistency requires that the correlations between items satisfy the

Spearman product rule (Hunter & Gerbing, 1982). The Spearman product rule states that the correlation between pairs of items in a cluster is the product of the item-cluster correlations. Therefore, for a set of items in a cluster the matrix product of the item-cluster correlations should reproduce the item correlation matrix if the cluster is internally consistent. Parallelism requires that the correlations between items in a cluster and either other clusters or theoretically salient "outside" variables such as Lifetime Alcohol Problems, Total Antisocial Behavior, and Beck Depression show a similarity of pattern termed parallelism. In addition, each cluster was tested to determine its invariance across major factors in the data such as sex of respondent and age of child. In each case, the clusters were found to be stable or invariant across both age of child and sex of respondent.

At the end of the work described above, Maguin et al. (1991) had identified a set of 53 clusters from the four instruments used in the study. Inspection of this set of clusters showed that, in some cases, clusters of equivalent content were found on more than one instrument. For instance, clusters measuring the construct of Aggression were found on each of the four instruments. Since clusters of similar content are expected to be parallel measures of the same construct, it should be possible to group these clusters together and treat the result as a better measure of the construct. To verify that the clusters should be

grouped together, a second order confirmatory factor analysis was performed (Hunter & Gerbing, 1982). As in a first order confirmatory analysis, the provisional grouping was checked for internal consistency and for parallelism with other variables.

In addition to Aggression, the only other construct found on all four instruments was Hyperactivity. One construct, Defiant, was found on three instruments and four constructs, Anger Arousal, Property Damage, Delinquency, and Shy, were found on two instruments. In all cases where a construct was represented by clusters from more than one instrument, the corresponding clusters were tested for internal consistency and parallelism using second order confirmatory factor analysis. And, in all cases, the clusters from different instruments were found to be internally consistent and parallel.

There were five constructs that were represented on only one instrument: Cooperative, Cries, Insecure, Affectionate, and Compliant. In the case of Cooperative, the construct was represented by three clusters, Plays Well, Anger-Talks, and Polite. These narrowly defined clusters were placed together because each measured an aspect of a broader construct. Again, a second order confirmatory factor analysis was used to see if the narrow clusters did measure a higher order construct. Such was the case.

The remaining four constructs were measured by only one cluster. Since these clusters had already been shown to be

internally consistent and parallel, a second order analysis was not needed.

Tables 12 to 23 in Appendix C list the items that measure each construct grouped by cluster. For example, consider aggression. Table 13 shows that aggression is measured by 24 items split 6 + 7 + 5 + 6 across the four instruments. Conceptually, it is correct to think of aggression as if it were a compound scale across the 24 items although it is not computed exactly that way.

The best measure of a construct as perceived by one parent is simply the sum or average of the clusters from the individual instruments that have been found to measure the construct. If the instrument cluster scores have quite different standard deviations, their scores should be converted to standard scores before summing or averaging to avoid giving those clusters with a larger standard deviation a greater weight. This measure will be called a "compound scale score" in order to distinguish it from the scale scores for the separate individual instrument clusters. This compound scale score is, therefore, the best estimate of the construct as perceived by a parent.

In this study, both mothers and fathers provided ratings of their child's behavior. The model used here treats parents as equal raters or observers of their child's behavior (see Maguin, et al., 1991 for a more detailed discussion of this model). Under this model, each parent's observed score is assumed to consist of the sum of three

terms: an actual (true) score for the construct which is equal between parents, an idiosyncratic component reflecting individual perceptual differences (see Maguin et al. for a more detailed discussion of the idiosyncratic component), and a random response error component. To simplify the model, the mother's and father's idiosyncratic components are assumed to be uncorrelated with each other and with other terms in the model.

The reliability of one parent's score on a construct is estimated by the coefficient alpha for the construct. Coefficient alpha estimates the correlation between two perfectly parallel measures of the same construct. If mothers and fathers use the same items to measure a construct and the resulting scale score has equal reliability across parents, then mother's and father's ratings are parallel measures of the same construct. As shown in Maguin et al. (1991) such is the case for the constructs used here.

If parents brought no idiosyncratic perceptions to their ratings (i.e., if each idiosyncratic component were zero), then the correlation between parents (the interrater reliability) would be the same (to within sampling error) as the coefficient alpha for the construct. As a review of Sections A and B of Tables 24 to 35 in Appendix E indicate, the correlation between parents for each construct is much lower than the alpha reliability of that compound scale score. This shows that there is a large idiosyncratic

component to the perceptions of each parent. This component could not be identified in either the first or second order cluster analysis because the idiosyncratic component is thought to represent a consistent shift in a parent's perceptions of their child. An example of the process is the tendency for depressed mothers to describe their children as worse than observational data reveals them to be (e.g., Griest, Wells & Forehand, 1979 and Brody & Forehand, 1986). Under the assumption that the idiosyncratic component is uncorrelated between parents, the reliability for one parent's perceptions as a measure of the construct is at most the between parent correlation.

The best estimate of the construct is the average of the perceptions of the two parents, which averages the two idiosyncratic components and reduces the contribution of this component. The reliability of the resulting score is obtained from the between parent correlation by using the Spearman-Brown formula for two measurements (i.e., in the same way that the odd-even correlation is corrected to yield the correlation of the full length test):

$$r_{22} = (2 * r_{11}) / (1 + r_{11})$$

For example, if the between parent correlation for the compound score is .50, then the reliability of each separate parent score is .50 and the reliability of the average of the two parent scores is [2(.50)]/(1+.50) = 1/1.5 = .67.

In summary, the compound scale score was computed by converting the instrument cluster raw scores to standard

score form and then averaging over the clusters making up the construct. The means and standard deviations used to standardize the cluster scores were computed by pooling the scores from all families in the intervention study at all time points. The means and standard deviations are, therefore, based on a sample of approximately 600 observations (104 families times two parents times four time points less missing observations). Compound scale scores were averaged across mother-father pairs to form the familywise compound scale scores. A constant of 3.00 was also added so that all final scores would be positive.

The impact of the intervention was computed by the change score (i.e., the difference in the familywise compound scale scores) for each pair of time points. The resulting change scores were then correlated with intervention group to yield a point biserial correlation.

Missing data -- always a problem in longitudinal analysis --were handled as follows (see Appendix D for a detailed summary of missing data). At the item cluster level, the missing item(s) were set to the mean of the remaining nonmissing items in the cluster for that parent. At the level of compound scales, missing cluster means were set to the mean of the remaining nonmissing clusters in that compound scale for that parent. There were two exceptions to this procedure. One exception was made for two families, an Intervention group family at T1.2 and a Control group family at T1.3, who completed only the PDR-M (the remaining

posttest instruments were not completed because the families either could not be scheduled within a reasonable time following their completing the intervention or refused to complete the posttest). Although it would have been able to compute an Aggression compound scale score for these two families, this was not done because the PDR-M Aggression cluster has a substantially poorer interrater reliability than the remaining clusters in the compound scale (see Table 28A in Appendix G) and because the PDR-M cluster shows a substantially lower item-construct correlation than do the three remaining clusters (see Maguin et al., 1991). Thus, the Aggression compound scale score was declared missing for these two families.

The second exception occurred at T1.0 when, due to administrative oversight, the CBRS-P was not collected for four families in the Intervention groups and for four families in the Control group. Because the CBRS-P provided the sole measures of prosocial behavior, the loss of these families' data was particularly disconcerting. At the same time, these seven families also represented 15% of the sample of 52 families (One family separated before being offered the intervention and was not eligible.) Thus, a conservative missing data replacement strategy seemed the best course. Therefore, the CBRS-P scale scores for these seven families were replaced with the T1.0 means of the full sample of 104 families. To evaluate the impact of this procedure, the T1.0 to T1.1 change scores for the prosocial

scales were computed with and without these seven families. The results indicated that mean change score was raised by at most 0.05 standard deviations. This amount was judged to be negligible.

Finally, at the level of the analysis set (i.e., the set of cases upon which the statistics are computed), correlations were computed using pairwise deletion of missing cases.

Measurement Models. The basic measurement findings for each of the 12 construct measures used in this report are listed in Tables 27 to 38 of Appendix G. Each table has two sets of findings. The top part of each table (Section A) presents alpha reliability, the between parent correlation (interrater reliability), and the reliability of the scale score averaged across parents for the instrument clusters comprising each construct. These data are taken from Maguin et al. (1991) and are based on the cluster development sample used for that work. The sample for that work involved all available cases from the Michigan State Longitudinal Study T1.0 data set in combination with all available cases from this study (i.e., T1.0, T1.1, T1.2, and T1.3 assessments). The sample size was between 848 and 912 observations where an observation refers to one parent's report of their child's behavior at one time point (e.g., father at T1.2). A cluster's alpha reliability differs from that cluster's between parents correlation because the alpha reliability treats the parental idiosyncratic component as

part of the true score while the between parent correlation treats the idiosyncratic component as part of the error of measurement. The difference between the alpha reliability and the between parent correlation is an index of the size of the idiosyncratic component. Finally, the reliability of the scale score averaged across parents equal to the between parent correlation for that scale that has been corrected by the Spearman-Brown formula (analogous to the corrected odd-even correlation of ordinary test theory).

The bottom of each table (Section B) presents the reliability findings for the compound scale at each time point and the across time means and correlations. The nominal N for these data are 104 (i.e., all families in the intervention study) but due to missing data the actual N averages about 90. The alpha reliability is the reliability of the compound scale as a measure of the particular parent's perception with the idiosyncratic component included. The between parent correlations is the reliability of the compound scale as a measure of the particular parent's perception treating the idiosyncratic component as error.

The means and standard deviations for the compound scales and correlations between the compound scales used in these analyses are presented as Appendix H. Also included in Appendix H are the three post hoc composite measures whose construction will be described in a later section of this report. The data in Appendix H was computed from the T1.0

data for the 104 intervention study families.

Hypothesis A. Hypothesis A states that the group receiving the intervention will show a significant decrease in negative behavior relative to the control group. The presentation of data relevant to this hypothesis is shown in Table 4 and Figures 3 to 14, which present the means and standard deviations observed for the intervention and control groups separately and then combined for the 12 family wise scales used in these analyses. A higher mean score indicates that a child has "more" of the construct measured.

Table 5 presents the intervention effect point biserial correlations. The point biserial correlations were computed so that change could be assessed at adjacent time points, over the whole of the intervention period, and over the whole of the intervention plus followup period. A positive correlation means that the intervention group increased more than the control group between the two time points. Conversely, a negative correlation means that the intervention group decreased more than the control group between the two time points.

Several points should be kept in mind when examining and comparing the data presented in Tables 4 and 5. Change produced by the intervention is assumed to be added to change produced by other processes. That is, any across time change shown by the control group is expected to also be shown by the intervention group. Thus, the only determinant

of differences between the intervention and control groups, besides ordinary sampling error, should be the intervention itself. To insure that this is most nearly true, the control group was selected by the same criteria as the intervention. Thus, families who divorced or moved were also excluded from the control group. But, one factor that could not be controlled was attrition due to intervention involvement. As shown in Table 3, 21 of the 62 families who were qualified and available for the intervention either refused the intervention offer, dropped out in the early sessions, thereby indicating a failure to commit to the treatment work, or dropped out after five or more sessions. Had the families in the control group actually been offered the intervention, some of them may have refused or dropped out. However, specifically which families, if any, would have done so can not be known. To the extent that noncompliance with the posttest data collection was a proxy measure for this effect, then an adjustment for this effect is present in the analyses since control group families who did not complete the T1.1 and T1.2 posttests were excluded from the analyses.

The compound scales used in this analysis can be grouped into four general groups on the basis of their content. The groups are negative behavior (Anger Arousal, Aggression, Defiant, Hyper, Property Damage, and Delinquent), prosocial behavior (Cooperative and Compliant), affectionate behavior (Affectionate), and inhibited behavior (Insecure, Shy, and

Table 4
Across Time Means and Standard Deviations for Intervention and Control Groups on Compound Scales

Construct		T1.0	T1.1	T1.2	T1.3
Anger Arousal					
Intervention	M	3.09	2.97	2.78	2.88
	SD	0.76	0.70	0.65	0.72
	n	29	29	28	29
Control	M	2.91	3.04	2.94	2.85
	SD	0.74	0.67	0.74	0.75
	n	23	23	23	22
Total	M	3.01	3.00	2.85	2.87
	SD	0.75	0.68	0.69	0.72
	n	52	52	51	51
Aggression					
Intervention	M	2.98	2.94	2.95	2.88
	SD	0.57	0.63	0.73	0.81
	n	29	29	28	29
Control	M	3.02	3.08	3.10	2.97
	SD	0.52	0.70	0.73	0.56
	n	23	23	23	22
Total	M	3.00	3.00	3.02	2.92
	SD	0.54	0.66	0.73	0.71
	n	52	52	51	51
Hyper					
Intervention	M	3.10	2.97	2.90	2.98
	SD	0.60	0.71	0.65	0.64
	n	29	29	28	29
Control	M	2.88	2.85	2.84	2.70
	SD	0.71	0.70	0.68	0.50
	n	23	23	23	22
Total	M	3.00	2.92	2.87	2.86
	SD	0.65	0.70	0.66	0.60
	n	52	52	51	51

Table 4 (cont'd)

Construct		T1.0	T1.1	T1.2	T1.3
Defiant					
Intervention	M	3.13	3.03	2.97	2.93
	SD	0.65	0.66	0.72	0.76
	n	29	29	28	29
Control	M	2.94	3.06	2.96	2.77
	SD	0.61	0.69	0.64	0.75
	n	23	23	23	22
Total	M	3.05	3.05	2.96	2.86
	SD	0.63	0.67	0.68	0.75
	n	52	52	51	51
Property Damage					
Intervention	M	3.32	3.02	2.86	2.76
	SD	0.60	0.66	0.63	0.58
	n	29	29	28	29
Control	M	3.23	3.01	2.84	2.77
	SD	0.62	0.74	0.62	0.64
	n	23	23	23	22
Total	M	3.28	3.01	2.85	2.77
	SD	0.61	0.69	0.62	0.60
	n	52	52	51	51
Delinquent					
Intervention	M	2.87	2.94	2.96	3.11
	SD	0.54	0.52	0.67	0.86
	n	29	29	28	29
Control	M	2.95	2.95	3.02	2.98
	SD	0.57	0.46	0.62	0.53
	n	23	23	23	22
Total	M	2.91	2.94	2.99	3.06
	SD	0.55	0.49	0.64	0.73
	n	52	52	51	51

Table 4 (cont'd)

Construct		T1.0	T1.1	T1.2	T1.3
Cooperative					
Intervention	M	2.69	3.06	3.17	3.14
	SD	0.50	0.66	0.67	0.65
	n	29	29	28	29
Control	M	2.97	2.94	3.06	3.02
	SD	0.63	0.75	0.77	0.68
	n	23	23	23	22
Total	M	2.81	3.01	3.12	3.09
	SD	0.57	0.70	0.71	0.66
	n	52	52	51	51
Affectionate					
Intervention	M	3.11	3.06	3.03	2.89
	SD	0.75	0.94	0.88	0.76
	n	29	29	28	29
Control	M	3.21	3.11	2.80	2.82
	SD	0.60	0.86	0.69	1.05
	n	23	23	23	22
Total	M	3.15	3.08	2.92	2.86
	SD	0.68	0.89	0.80	0.88
	n	52	52	51	51
Compliant					
Intervention	M	2.61	3.23	3.14	3.09
	SD	0.84	0.77	0.77	0.64
	n	29	29	28	29
Control	M	2.52	2.58	2.91	2.93
	SD	0.60	0.79	0.94	0.64
	n	23	23	23	22
Total	M	2.57	2.94	3.04	3.02
	SD	0.74	0.83	0.85	0.64
	n	52	52	51	51

Table 4 (cont'd)

Construct		T1.0	T1.1	T1.2	T1.3
Shy					
Intervention	M	3.01	2.83	2.73	2.75
	SD	0.61	0.74	0.70	0.63
	n	29	29	28	29
Control	M	3.20	3.03	3.05	2.98
	SD	0.90	0.73	0.68	0.75
	n	23	23	23	22
Total	M	3.10	2.92	2.87	2.85
	SD	0.75	0.74	0.70	0.69
	n	52	52	51	51
Cries					
Intervention	M	3.00	3.11	3.04	2.86
	SD	0.90	0.72	0.74	0.81
	n	29	29	28	29
Control	M	2.99	3.09	3.14	2.77
	SD	1.05	0.81	0.91	0.65
	n	23	23	23	22
Total	M	2.99	3.10	3.08	2.82
	SD	0.96	0.75	0.81	0.74
	n	52	52	51	51
Insecure					
Intervention	M	3.30	3.02	2.81	2.89
	SD	1.06	0.72	0.67	0.66
	n	29	29	28	29
Control	M	3.07	3.18	2.85	2.76
	SD	0.93	0.74	0.76	0.69
	n	23	23	23	22
Total	M	3.20	3.09	2.83	2.83
	SD	1.00	0.72	0.71	0.67
	n	52	52	51	51

Figure 3
Across Time Means for Anger Arousal
Intervention Group vs Control Group

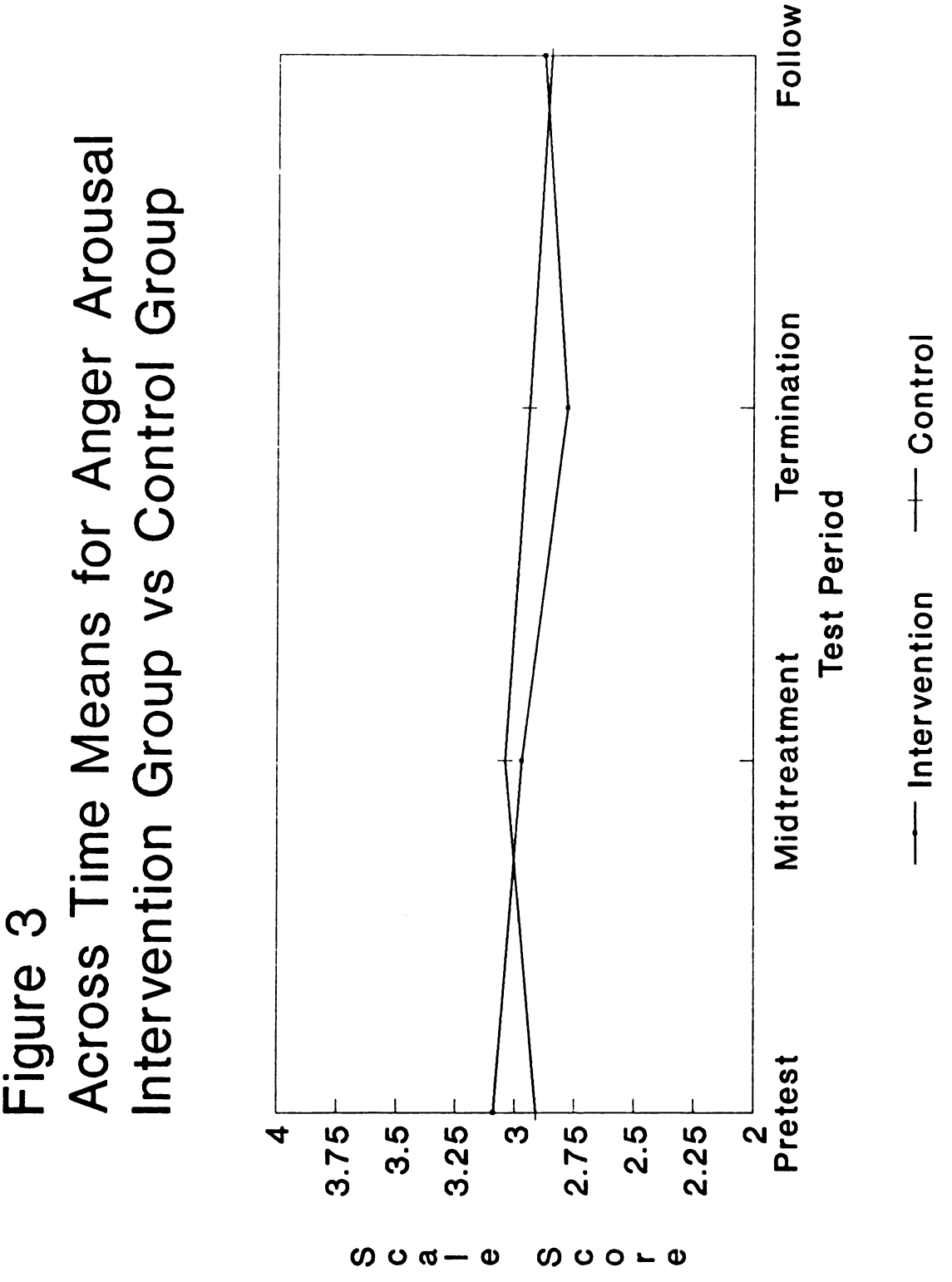


Figure 4
Across Time Means for Aggression:
Intervention Group vs Control Group

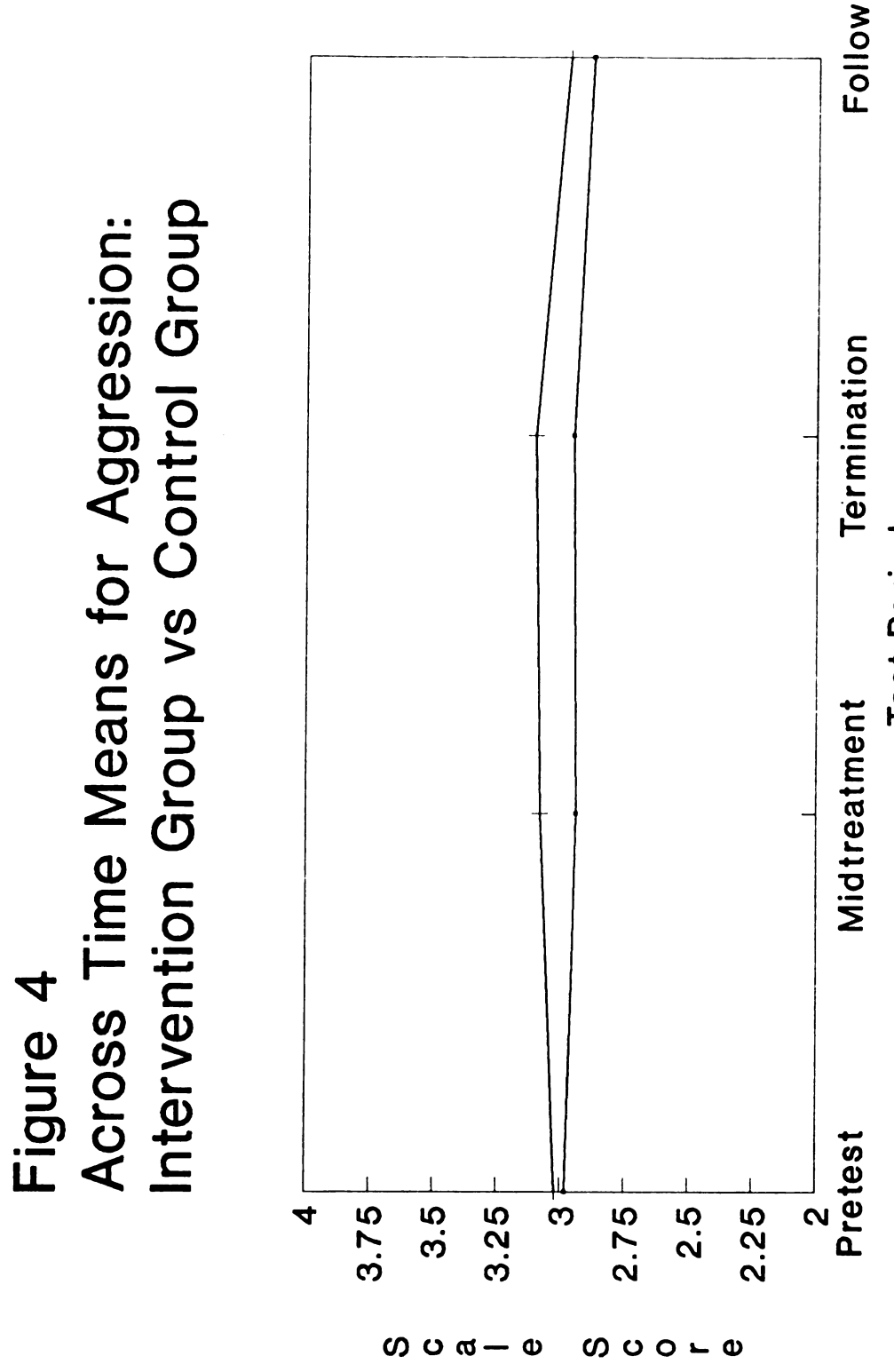


Figure 5
Across Time Means for Defiant:
Intervention Group vs Control Group

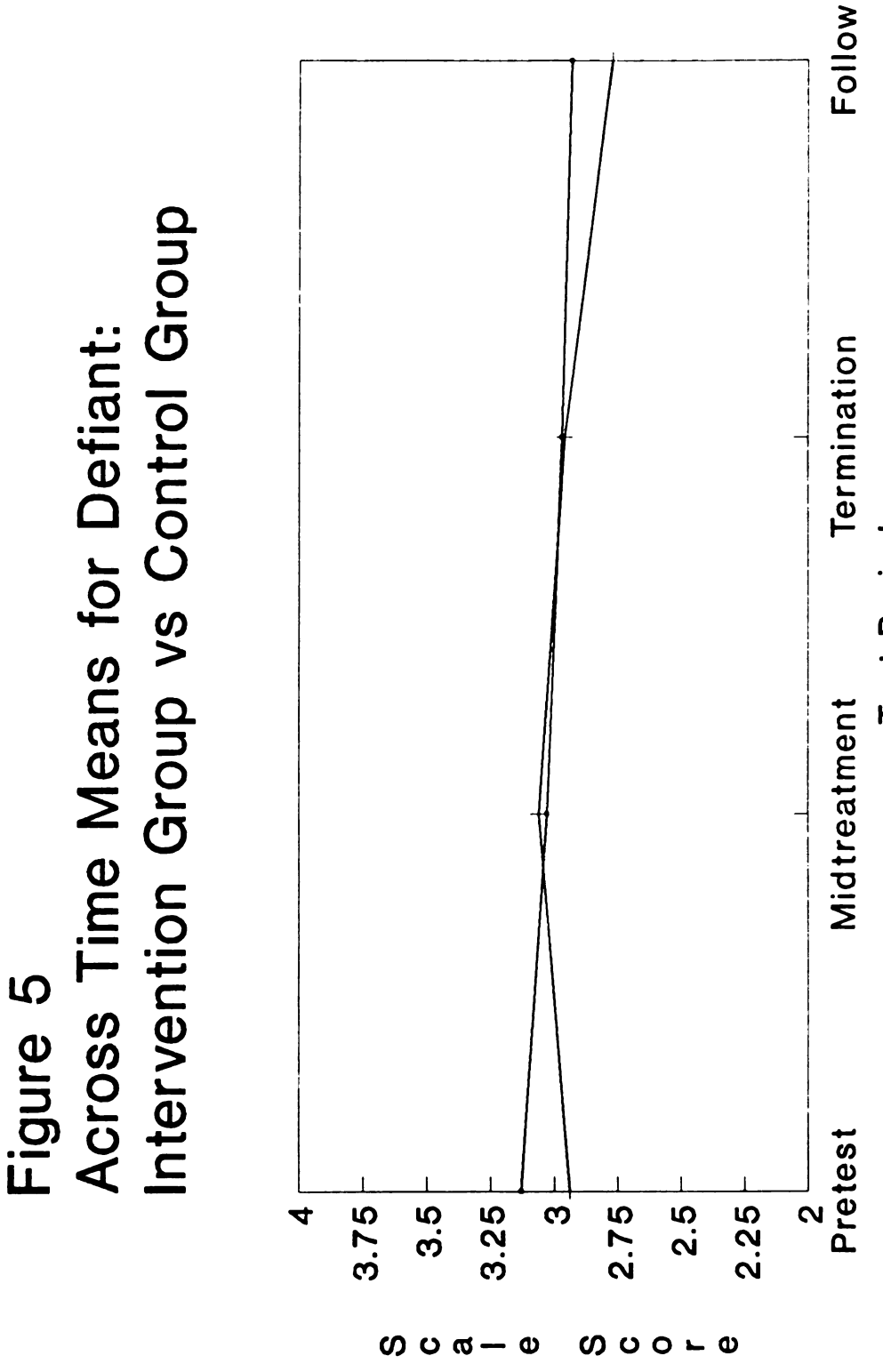


Figure 6
Across Time Means for Hyper:
Intervention Group vs Control Group

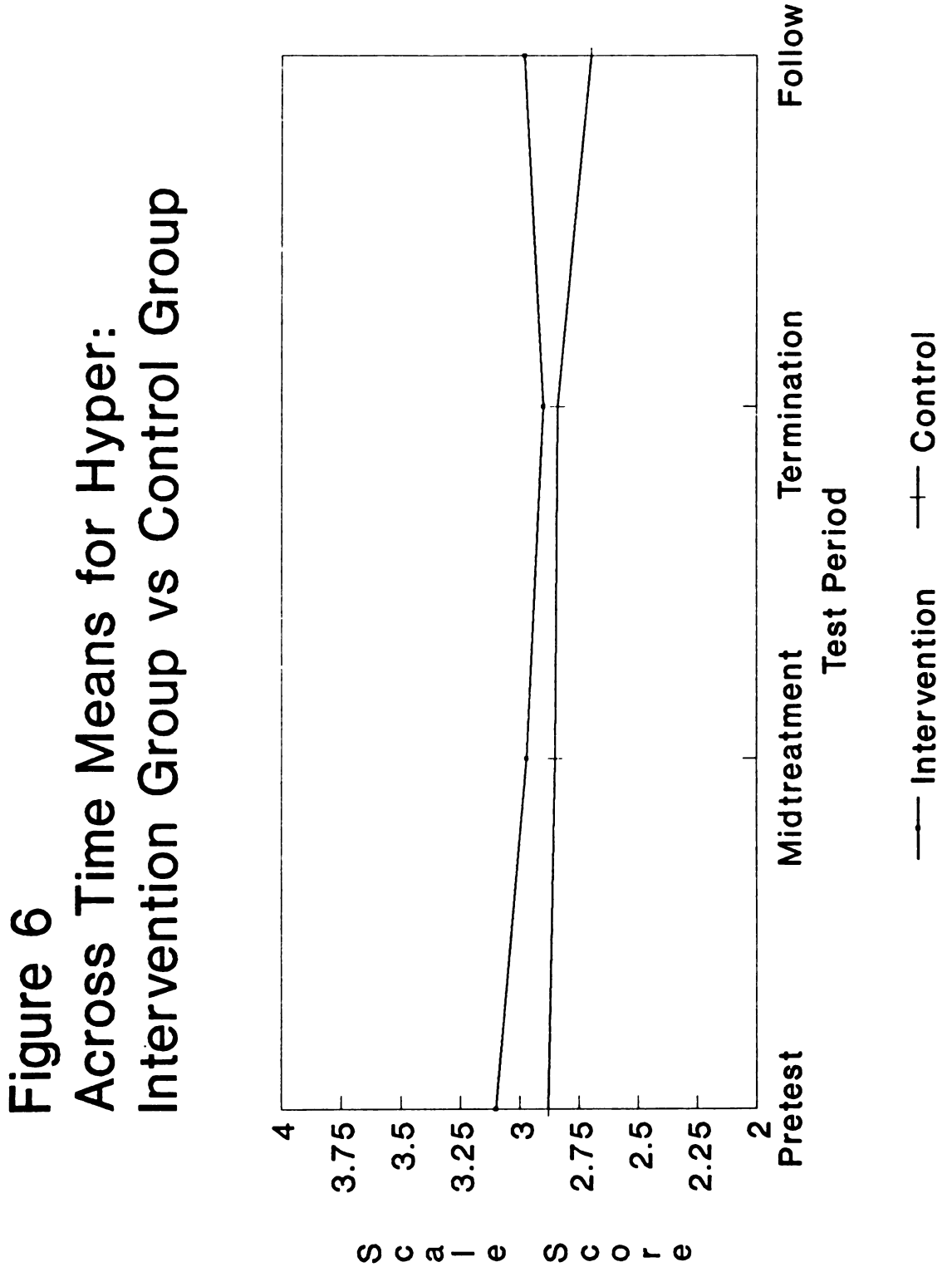


Figure 7
Across Time Means for Property Damage:
Intervention Group vs Control Group

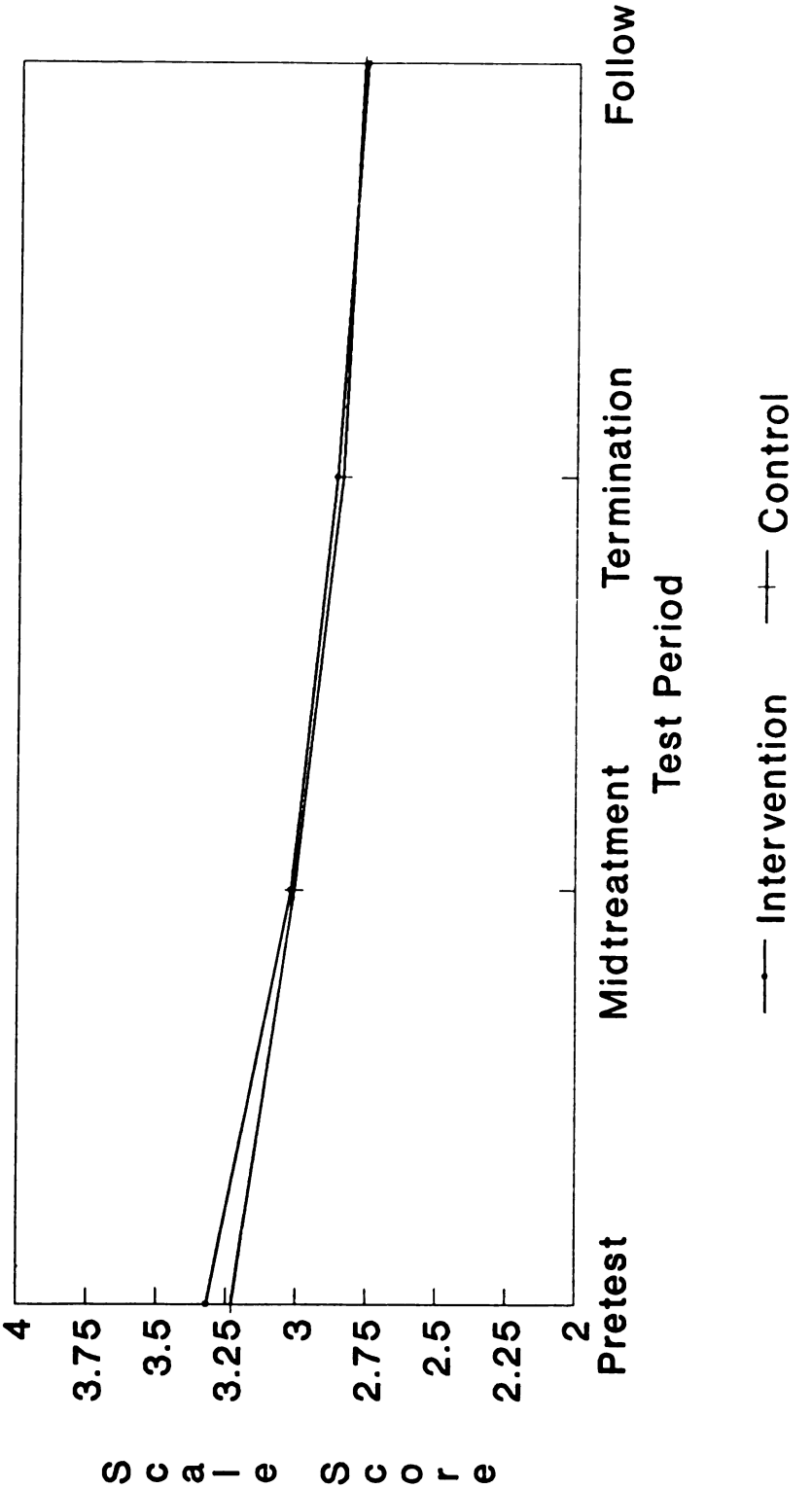


Figure 8
Across Time Means for Delinquent:
Intervention Group vs Control Group

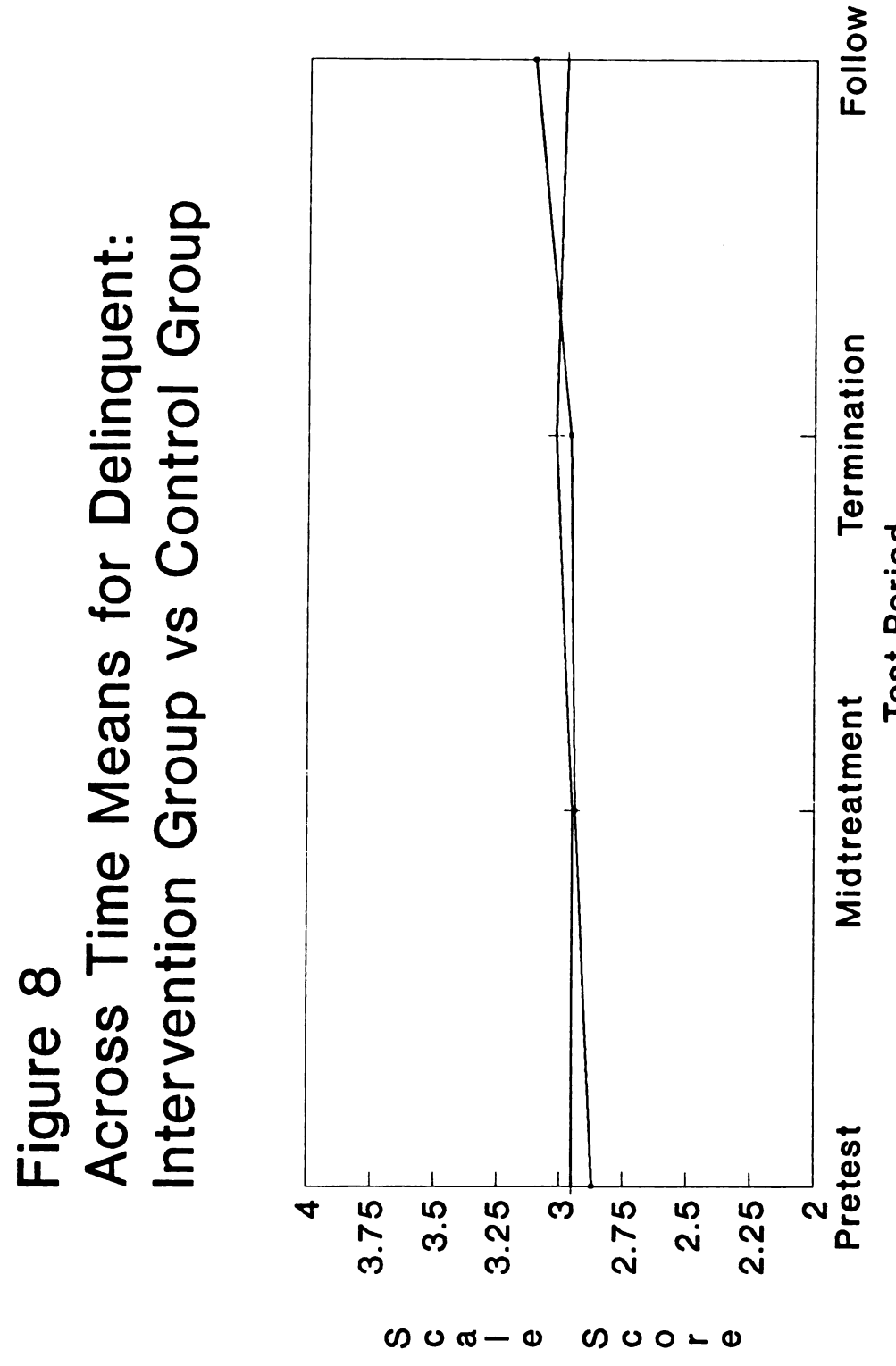


Figure 9
Across Time Means for Cooperative: Intervention Group vs Control Group

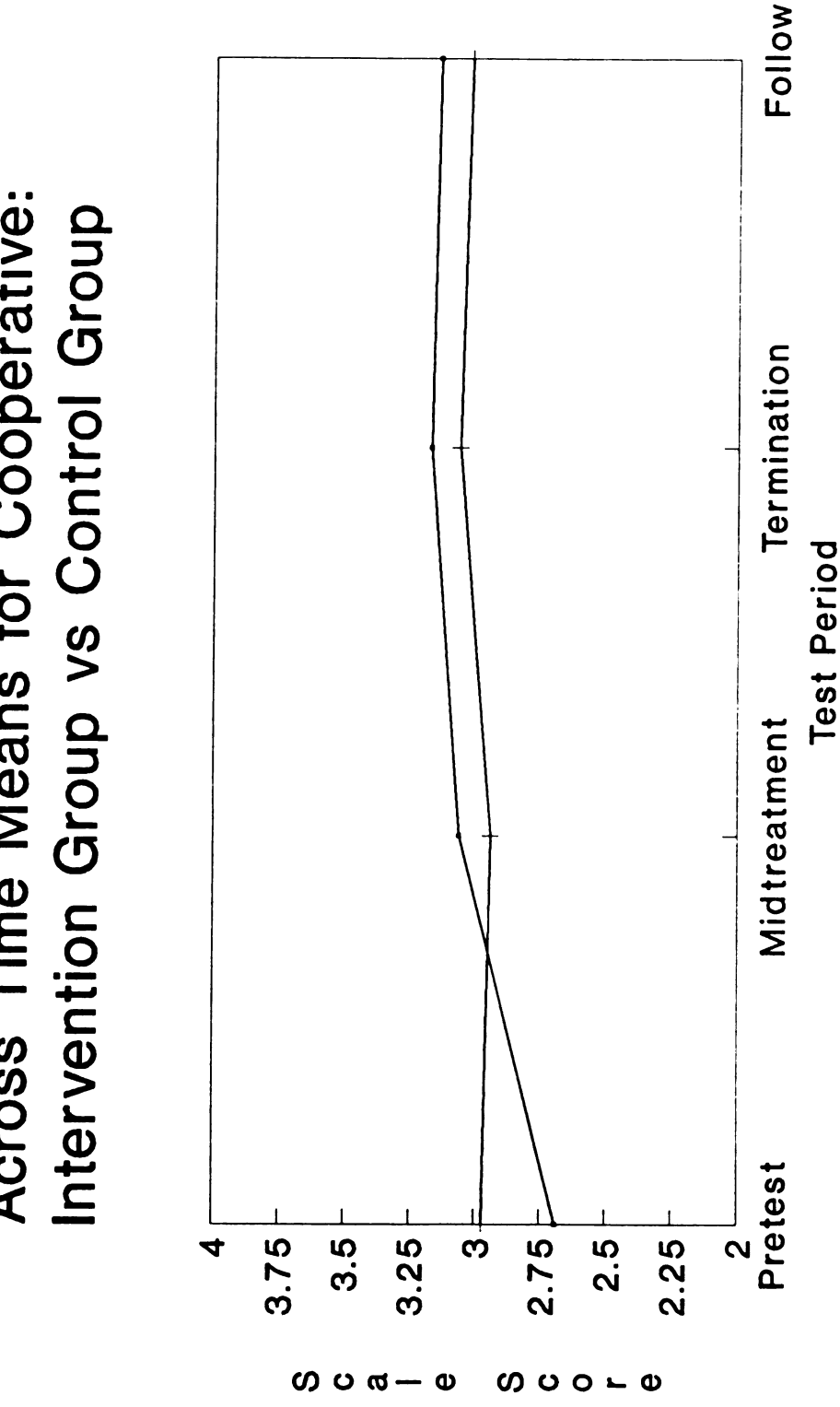


Figure 10
Across Time Means for Compliant:
Intervention Group vs Control Group

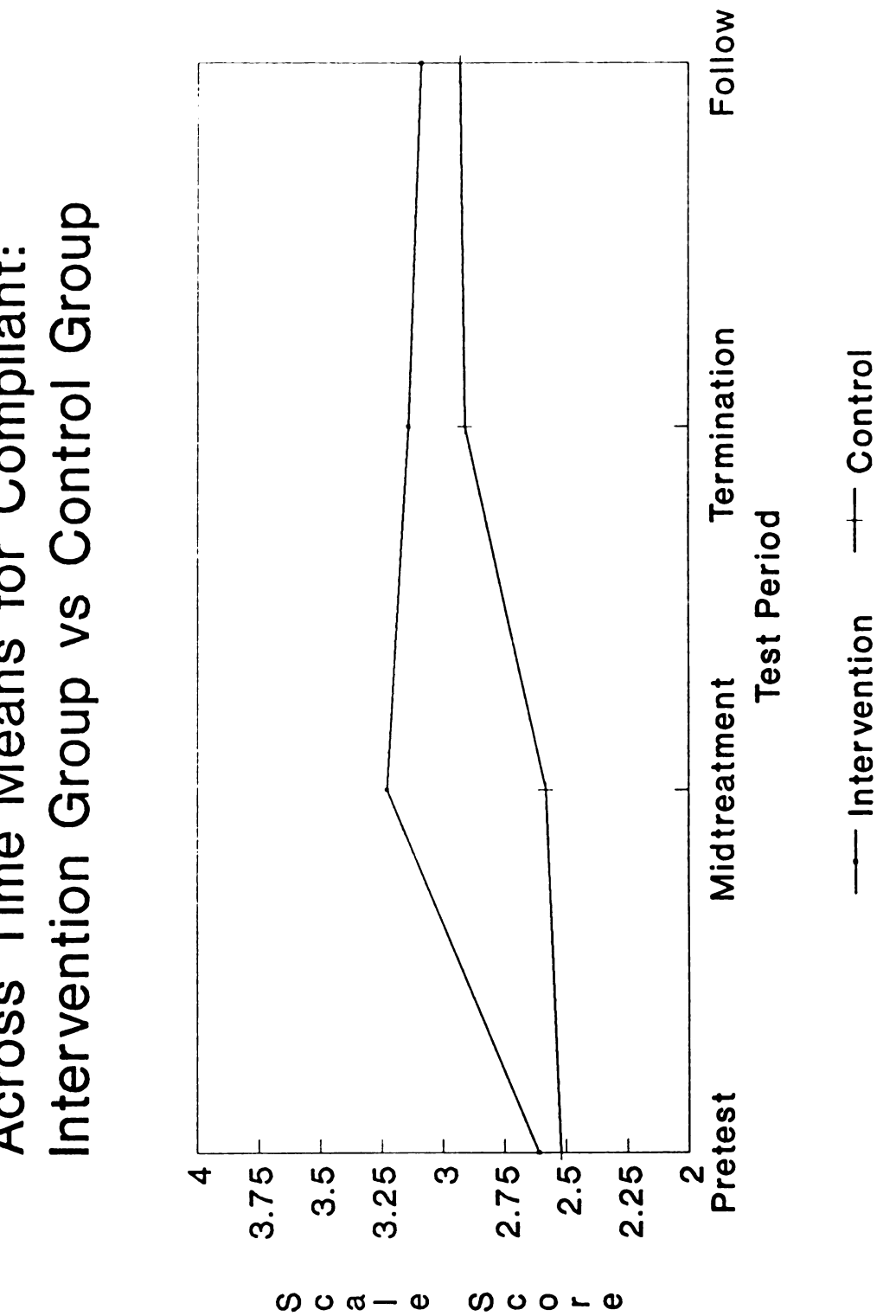


Figure 11
Across Time Means for Affectionate: Intervention Group vs Control Group

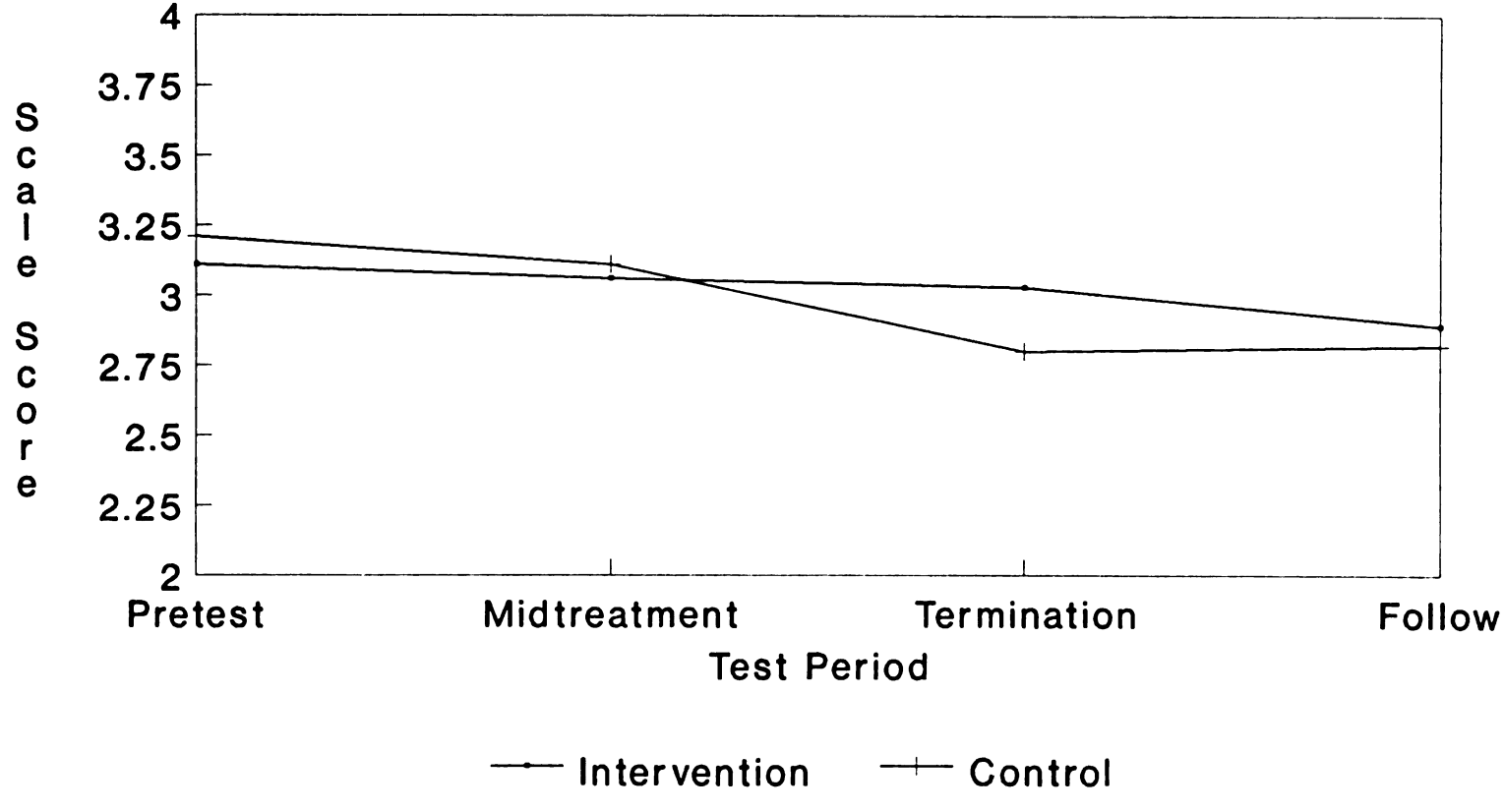


Figure 12
Across Time Means for Shy:
Intervention Group vs Control Group

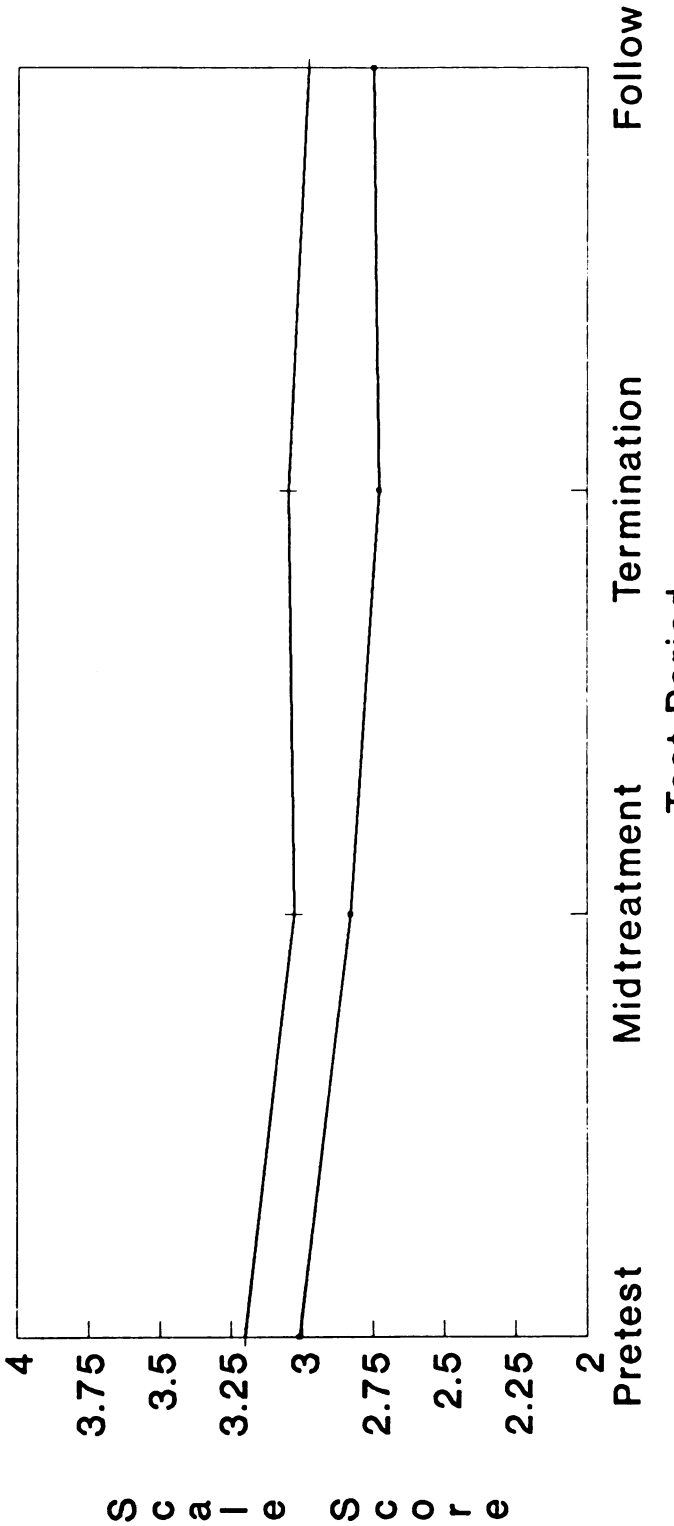


Figure 13
Across Time Means for Cries:
Intervention Group vs Control Group

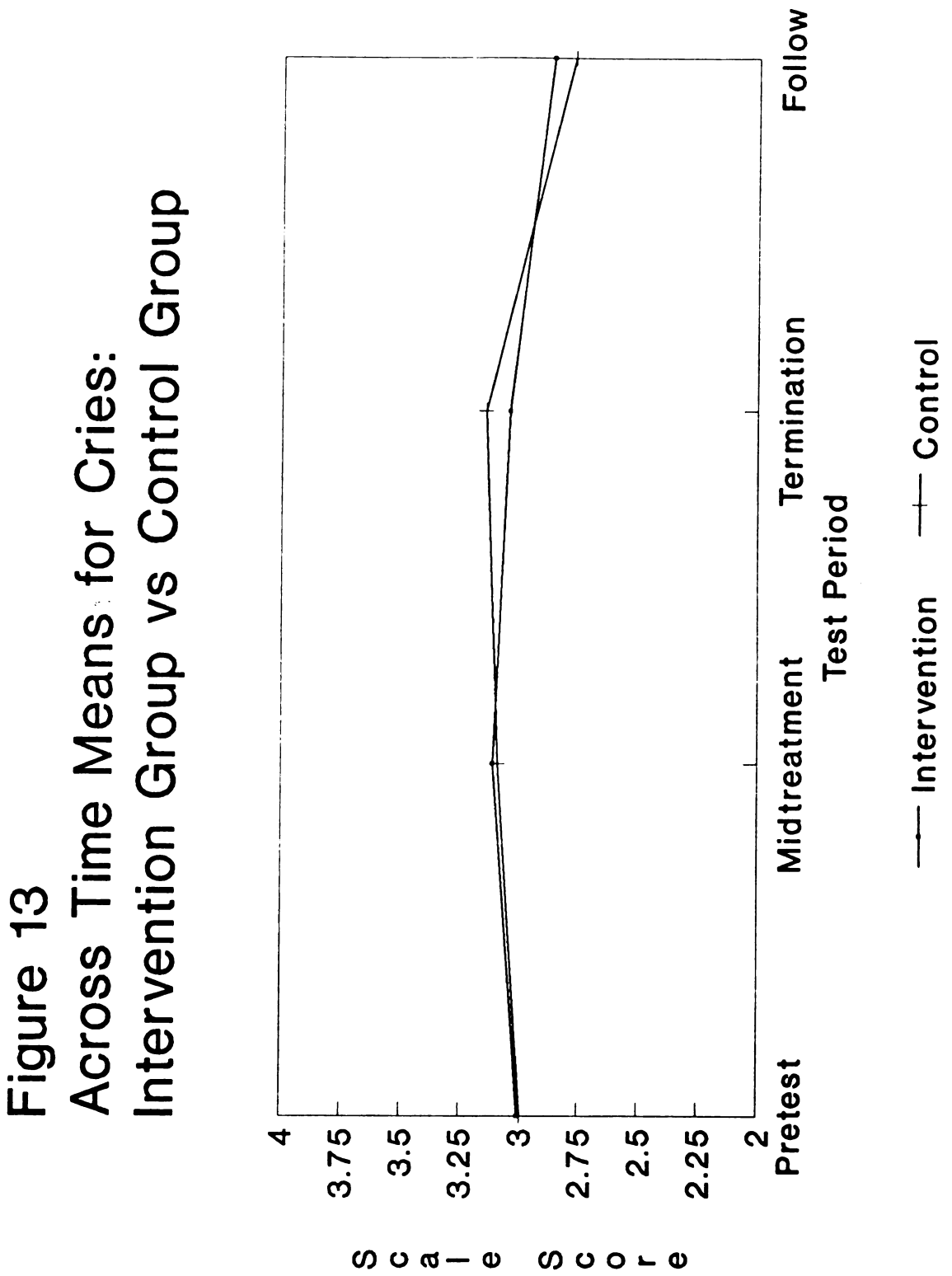
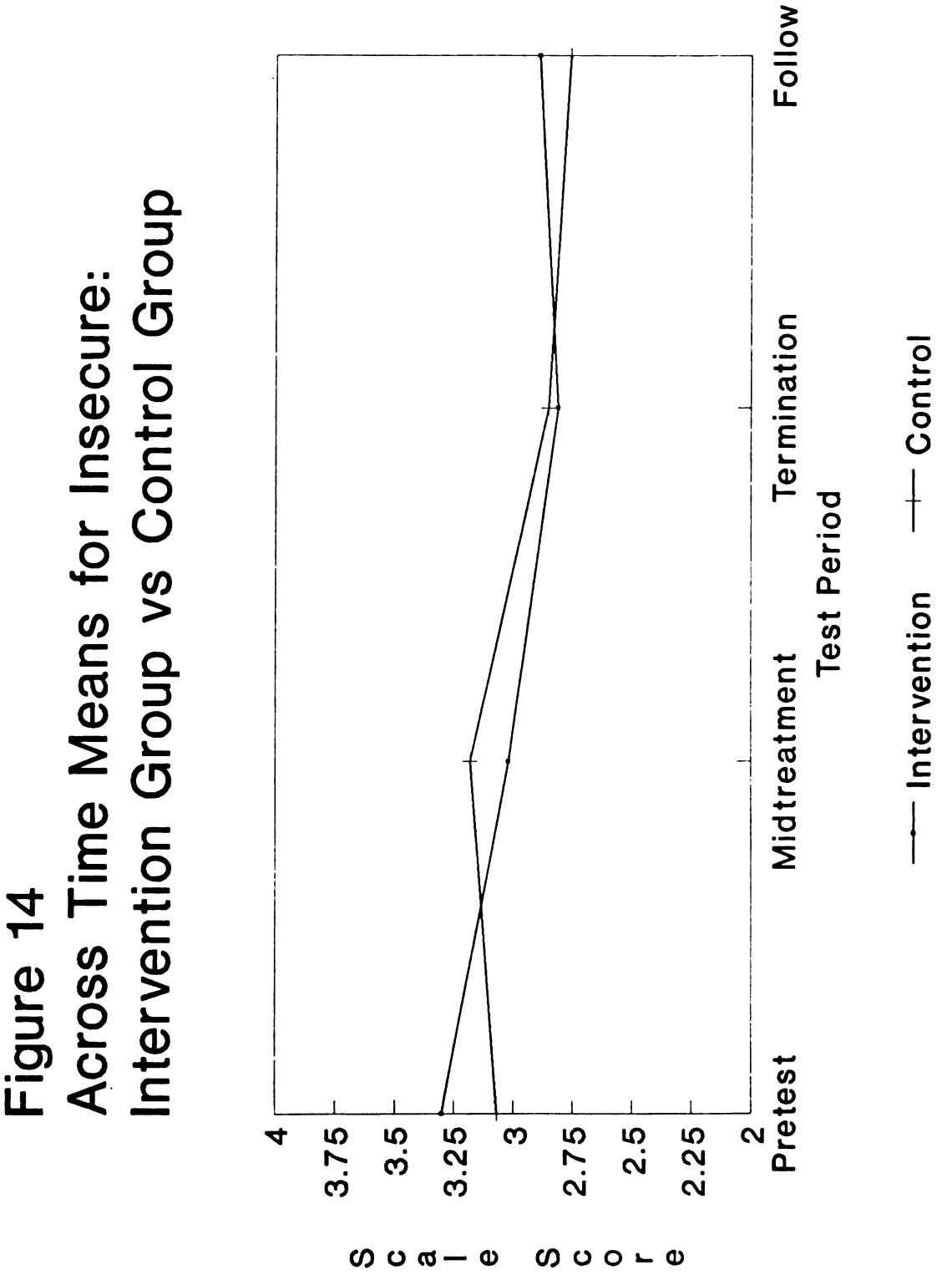


Figure 14
Across Time Means for Insecure:
Intervention Group vs Control Group



Cries).

The summary data in Table 5 pertaining to the negative behavior scales show an unexpected division of results. It was anticipated that the six scales would show similar effects because each scale measures a different aspect of negative behavior that could be addressed by using timeout. However, the patterns of change shown by Anger Arousal, Aggression, Defiant, and Hyper are very similar to each other but different from the patterns shown by either Property Damage or Delinquent. The general pattern shown by Anger Arousal, Aggression, Defiant, and Hyper is a decrease from T1.0 to T1.1, virtually no change from T1.1 to T1.2, and a rebound effect (increase) from T1.2 to T1.3. The overall effect of the intervention plus followup period is no change.

The two remaining scales, Property Damage and Delinquent, appear to be measuring effects possibly different from those measured by Anger Arousal, etc. The pattern of change shown by Property Damage is basically indistinguishable from random variation and, therefore indicates no intervention effects. Delinquent presents a set of effect correlations that appear to be only roughly similar to those of Anger Arousal, etc, but at reduced magnitude.

The degree of parallelism in the change correlations shown by Anger Arousal, Aggression, Defiant, and Hyper indicate that a composite of these four scales would best

Table 5
Point Biserial Intervention Effect Correlations for Compound Scales

Compound Scale		Time Period T1.1-T1.0	T1.2-T1.1	T1.3-T1.2	T1.2-T1.0	T1.3-T1.0
Anger Arousal	r	-.22+	-.13	.29*	-.33**	-.11
	n	52	51	50	51	51
Aggression	r	-.13	-.03	.13	-.15	-.04
	n	52	51	50	51	51
Hyper	r	-.13	-.11	.36**	-.20+	.07
	n	52	51	50	51	51
Defiant	r	-.19+	-.01	.26*	-.24*	-.02
	n	52	51	50	51	51
Property Damage	r	-.09	-.00	.00	-.07	-.09
	n	52	51	50	51	51
Delinquent	r	.08	-.08	.21+	.00	.15
	n	52	51	50	51	51
Cooperative	r	.33**	.02	-.07	.26*	.31*
	n	52	51	50	51	51
Compliant	r	.31*	-.33**	-.10	.08	.04
	n	52	51	50	51	51
Affectionate	r	.04	.23*	-.15	.24*	.13
	n	52	51	50	51	51
Shy	r	-.01	-.07	.08	-.09	-.05
	n	52	51	50	51	51
Cries	r	.00	-.10	.20+	-.10	.05
	n	52	51	50	51	51
Insecure	r	-.21+	.08	.15	-.17	-.06
	n	52	51	50	51	51

Note. A positive correlation indicates that the Intervention group changed more in the expected direction than did the Control group.
+ $p < .10$; * $p < .05$; ** $p < .01$; one tailed.

represent the summary effects of the intervention on negative behavior. Such a measure, Negative Composite, was constructed by averaging the familywise compound scales for Anger Arousal, Aggression, Defiant, and Hyper. The means and standard deviations for this composite scale are presented in Table 8 and graphically in Figure 15 and the point biserial correlations are presented in Table 9. The point biserial correlations for this scale indicate a significant decrease in negative behavior from T1.0 to T1.1, no change from T1.1 to T1.2, and a significant increase from T1.2 to T1.3. Overall, the net effect of the intervention plus followup period was one of no change.

It was expected that the prosocial behavior compound scales (Cooperative and Compliant) would be similarly affected by contracting and, thus, the effect correlations for the two scales would be parallel. However, the pattern of effect correlations for the two scales shown in Table 5 show that this expectation is not true.

Cooperative shows a large positive change from T1.0 to T1.1 and no evidence of further change at either of the two succeeding time periods. Compliant also shows a large positive change from T1.0 to T1.1 but then rebounds negatively from T1.1 to T1.2 and then shows a slight negative change from T.12 to T1.3. Because of the divergent behavior from T1.1 to T1.2, the cumulative change effects from T1.0 to T1.2 and from T1.0 to T1.3 are different for the two scales. Overall, Cooperative shows evidence of a

sustained change while Compliant shows evidence of a transitory change.

While Cooperative and Compliant clearly show intervention effects in the anticipated direction, the divergent pattern of their results is puzzling. The magnitude of the results are similar from T1.0 to T1.1 and from T1.2 to T1.3, but not from T1.1 to T1.2. One possibility is that the group means for either Cooperative or Compliant are anomalous at either T1.1 or at T1.2. Such an anomaly would occur as the result of outliers or simply sampling error. Inspection of the casewise data shows no outliers and the across time means for neither Compliant nor Cooperative (Table 4) show any evidence of a large deviation attributable to sampling error. Thus, this possibility may be ruled out.

A second explanation for the results is that the contracting component of the protocol, which is heavily brought into play during the T1.0 to T1.1 interval differentially affects the behaviors measured by Cooperative and Compliant. Since Cooperative is measured by three more narrowly defined clusters (Plays Well, Anger-Talks, and Polite) it could be that contracting affects one or two the clusters but not all three. To check this possibility, issues pertaining to the contracting component needs to be examined.

The theory of the intervention says that contracting is used to increase prosocial behavior. But what kinds of

prosocial behavior? At the start of contracting parents are instructed to include minding (compliance to parental requests) and, possibly, a chore or a behavior on the contract. Later, contracts can include a wide variety of prosocial behavior (e.g., self care activities, dry bed, or putting toys away) that the parent wishes to encourage and support. However, affectionate behavior would never be included. Regardless of other provisions of the contract, minding is always supposed to be included because it measures compliance to all sorts of requests.

If parents have dutifully used contracting, then their ratings of the behaviors they contracted for should increase. Ratings of behaviors not contracted for may or may not change. Over a group of parents using contracting it seems likely that a variety of behaviors may be contracted for as parents tailor their contracts to their family's unique situation. Thus, evidence of contracting's efficacy should be most closely measured by clusters describing behavior that can, in fact, be included in the contract.

Table 18 in Appendix C presents the content description of the clusters (Anger-Talks, Polite, and Plays Well) which make up Cooperative. Table 19 presents the same information for Compliant. Inspection of the items in Tables 18 and 19 indicates that the kinds of items that can be contracted for are described by items in Polite (e.g., minds, says please and thank you, waits if you are on the phone) and Plays Well (e.g., shares toys and interacts well), and Compliant, but

not, unfortunately, by items in Anger-Talks. Therefore, the post hoc analysis indicates that Polite, Plays Well, and Compliant should show intervention effects but not Anger-Talks. I should note that my conjecture will need to be evaluated by a later content analysis of the contracting homework.

To examine this point further, the Cooperative compound was split into its component clusters and intervention effect point biserial correlations for these clusters were computed. The means and standard deviations are presented in Table 6 and the point biserial correlations are presented in Table 7. Compliant is presented again to facilitate comparisons. Inspection of the point biserials in Table 7 shows that the T1.1-T1.0 and T1.3-T1.2 effect correlations for Plays Well and Polite are similar to those for Compliant while those for Anger-Talks are different. The T1.2-T1.1 effect correlations still show the same sort of pattern noted before. As expected, Anger-Talks does appear to respond differently from Plays Well, Polite, or Compliant. The data thus indicate that Compliant, Polite, and Plays Well form the best measure of the intervention's effect on prosocial behavior.

Accordingly, these three clusters were used to form a composite measure, Prosocial Composite, to best represent the impact of the intervention on prosocial behavior of the type that might be included on a contract. The means and standard deviations for Prosocial Composite are presented in

Table 6
Across Time Means and Standard Deviations for Intervention and Control Groups for the Prosocial Scales

Construct		T1.0	T1.1	T1.2	T1.3
Plays Well					
Intervention	M	2.91	3.12	3.13	3.14
	SD	0.78	0.67	0.74	0.85
	n	29	29	28	29
Control	M	3.13	2.81	2.76	2.87
	SD	0.76	0.80	0.80	0.73
	n	23	23	23	22
Total	M	3.01	2.98	2.96	3.02
	SD	0.77	0.74	0.78	0.80
	n	52	52	51	51
Polite					
Intervention	M	2.57	3.01	3.23	3.10
	SD	0.72	0.88	0.88	0.81
	n	29	29	28	29
Control	M	2.93	2.92	3.27	3.13
	SD	0.61	0.95	0.94	0.82
	n	23	23	23	22
Total	M	2.73	2.97	3.25	3.12
	SD	0.69	0.90	0.90	0.81
	n	52	52	51	51
Anger-Talks					
Intervention	M	2.60	3.05	3.15	3.18
	SD	0.51	0.77	0.77	0.65
	n	29	29	28	29
Control	M	2.83	3.10	3.14	3.05
	SD	0.90	0.78	0.82	0.82
	n	23	23	23	22
Total	M	2.70	3.07	3.15	3.12
	SD	0.71	0.77	0.79	0.72
	n	52	52	51	51

Table 7
Point Biserial Intervention Effect Correlations for the Prosocial Behavior Scales

Scale		Time Period				
		T1.1-T1.0	T1.2-T1.1	T1.3-T1.2	T1.2-T1.0	T1.3-T1.0
Plays Well	r	.37**	.05	-.14	.31*	.31*
	n	52	51	50	51	51
Polite	r	.29*	-.06	-.09	.20+	.23*
	n	52	51	50	51	51
Compliant	r	.31*	-.33**	-.10	.08	.04
	n	52	51	50	51	51
Anger-Talks	r	.12	.06	.07	.14	.22+
	n	52	51	50	51	51

Note. A positive correlation indicates that the Intervention group changed more in the expected direction than did the Control group.
+ $p < .10$; * $p < .05$; ** $p < .01$; one tailed.

Table 8 and in Figure 16 and the point biserial effect correlations are presented in Table 9. The data from this scale indicate a significant increase in prosocial behavior from T1.0 to T1.1 but no further change from T1.1 to T1.2 or from T1.2 to T1.3. Over the intervention plus followup period, the data showed a significant increase in prosocial behavior.

Returning to Table 5, Affectionate, which measures the child's affectionate behavior toward the parents, shows a distinctly different pattern from either Compliant or Cooperative. The data show a small increase in Affectionate behavior from T1.0 to T1.1, a larger, significant, increase from T1.1 to T1.2, followed by a slight decrease from T1.2 to T1.3. Over the course of the intervention plus followup period, a increase in affectionate behavior, significant at the .10 level, was noted.

The three measures of inhibited behavior, Shy, Cries, and Insecure, show very little change due to the intervention. The correlations which show elevated values are due more to variability in the means than to the intervention. The significant effect noted for Insecure from T1.0 to T1.1 is likely a consequence of the elevated Intervention group T1.0 mean or the elevated Control group T1.1 mean. Overall, the data do not indicate that the intervention had any impact on inhibited types of behavior.

In summary, the intervention program had three significant effects. The first effect was to decrease

Table 8
Across Time Means and Standard Deviations for Intervention and Control Groups on the Composite Intervention Measures

Scale		T1.0	T1.1	T1.2	T1.3
Negative Composite					
Intervention	M	3.08	2.98	2.90	2.92
	SD	0.56	0.58	0.60	0.65
	n	29	29	28	29
Control	M	2.94	3.01	2.96	2.82
	SD	0.56	0.61	0.61	0.58
	n	23	23	23	22
Total	M	3.02	2.99	2.93	2.88
	SD	0.56	0.59	0.60	0.61
	n	52	52	51	51
Prosocial Composite					
Intervention	M	2.70	3.12	3.17	3.11
	SD	0.57	0.53	0.60	0.60
	n	29	29	28	29
Control	M	2.86	2.77	2.98	2.98
	SD	0.49	0.64	0.69	0.56
	n	23	23	23	22
Total	M	2.77	2.97	3.08	3.05
	SD	0.54	0.60	0.65	0.58
	n	52	52	51	51

Figure 15
Across Time Means for Negative
Composite: Intervention vs Control Group

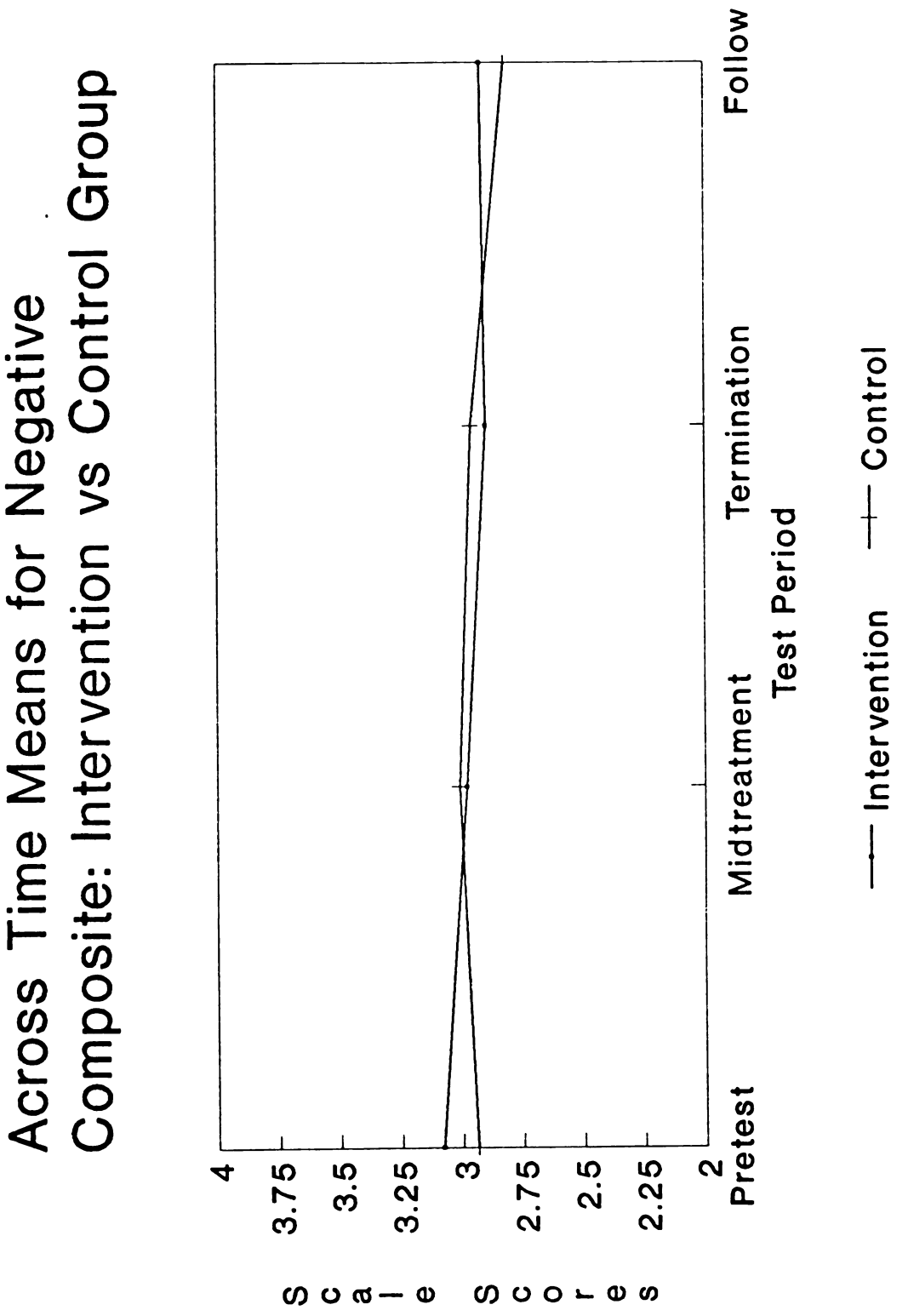


Figure 16
Across Time Means for Prosocial
Composite: Intervention Group vs Control

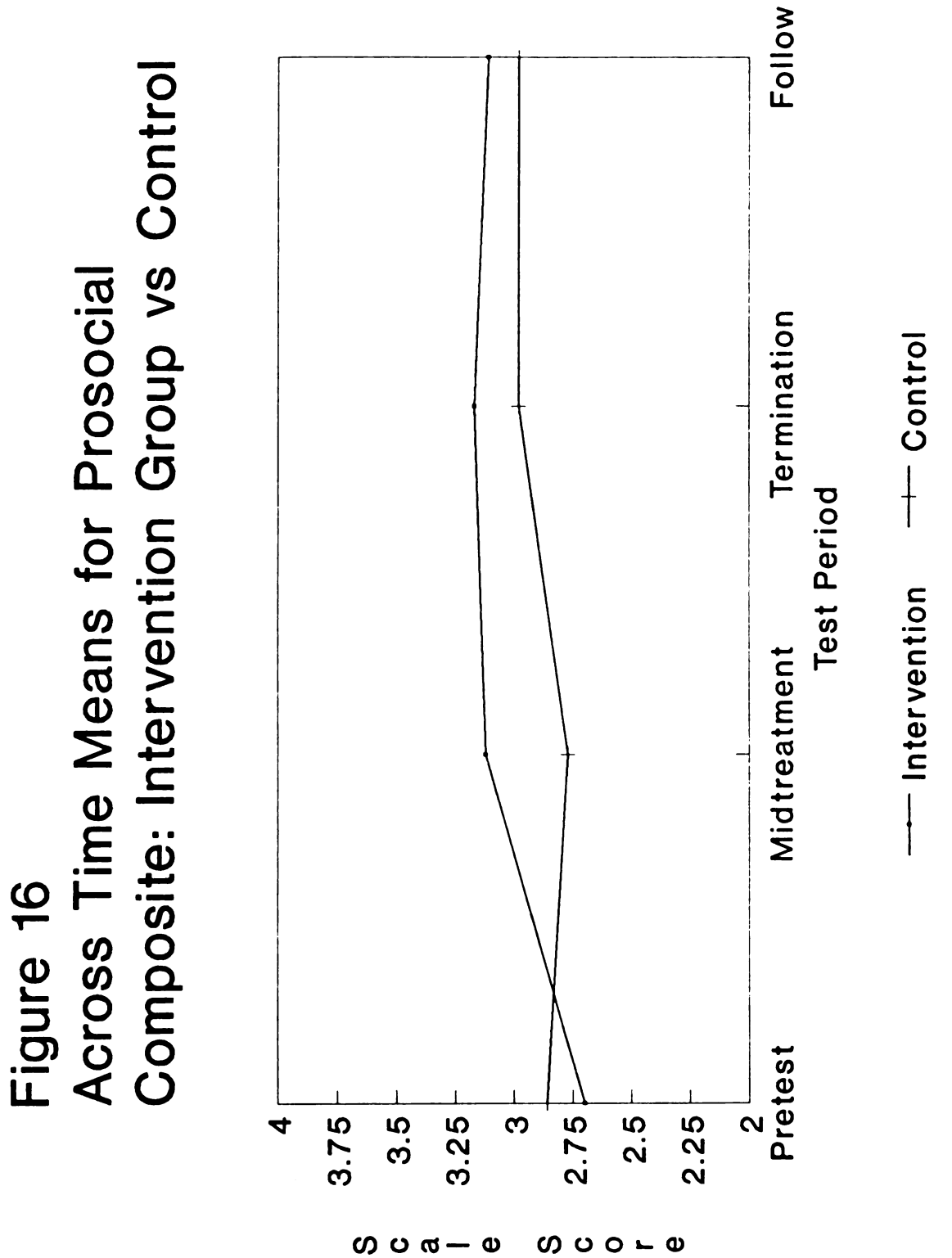


Table 9
Point Biserial Intervention Effect Correlations for the Composite Intervention Measures

Composite Scale		Time Period T1.1-T1.0	T1.2-T1.1	T1.3-T1.2	T1.2-T1.0	T1.3-T1.0
Negative Composite	r	-.23*	-.08	.35**	-.30*	-.04
	n	52	51	50	51	51
Prosocial Composite	r	.42**	-.18	-.16	.26*	.26*
	n	52	51	50	51	51

Note. A positive correlation indicates that the Intervention group changed more in the expected direction than did the Control group.
+ p < .10; * p < .05; ** p < .01; one tailed.

negative behavior of the overt type over the period from T1.0 to T1.1. As the T1.0 to T1.1 period is also the period when timeout is taught and its use monitored, these data indicate that timeout was effective. However, no further change was noted from T1.1 to T1.2 and a significant rebound was observed during the T1.2 to T1.3 followup period. Thus, no lasting effect was found. The second significant effect was an increase in prosocial behavior of the type that, in principle, could appear on a behavior contract from T1.0 to T1.1. As the T1.0 to T1.1 period is the period when contracting is taught and its use monitored, these data indicate that contracting was effective. However, no further change was noted from T1.1 to T1.2. No rebound effect was found from T1.2 to T1.3 as had been found for negative behavior. Thus, a lasting effect was found. The third significant effect was an increase in affectionate behavior from T1.1 to T1.2. However, the decrease in affectionate behavior from T1.2 to T1.3 that shows that no lasting effect was present.

Hypothesis B. Hypothesis B states the those families in which both parents are involved in the intervention programs will show significantly lower levels of negative behavior than will those families where only the mother was involved.

This hypothesis was analyzed by using the composite summary variables developed for Hypothesis A and the Affectionate compound scale. The full body of the results (means, standard deviations, and point biserial

correlations) for this hypothesis is presented in Appendix I. Table 10 presents the means and standard deviations of the composite measures and Affectionate for the two intervention formats and then combined across formats. As before, a higher score indicates "more" of the construct measured. Table 11 presents the point biserial correlations for the composite measures and Affectionate. The point biserial correlations were computed so that a positive coefficient means that the Both Parents format showed an advantage relative to the Mother Only format. Conversely, a negative coefficient means that the Mother Only format showed an advantage relative to the Both Parents format.

The effect correlations for the negative composite (Table 11) show an overall pattern of small effects at each time period. There appears to be considerable variability as the Mother Only format is favored from T1.0 to T1.1 but the Both Parents format is favored from T1.1 to T1.2 and from T1.2 to T1.3. Thus, there is no evidence of a pattern indicative of sustained change favoring either format.

The effect correlations for the prosocial composite indicate a consistent difference favoring the Both Parents format at each time period. Even though the individual correlations are not significant, the pattern appears to be quite stable and the cumulative effect over the intervention plus followup period is significant. Thus, there appears to have been a lasting effect for prosocial behavior.

Table 10
Across Time Means and Standard Deviations for Mother Only and Both Parents Formats on the Composite Intervention Measures

Scale		T1.0	T1.1	T1.2	T1.3
Negative Composite					
Mother Only	M	3.09	2.96	2.94	2.95
	SD	0.54	0.63	0.56	0.63
	n	17	17	16	17
Both Parents	M	3.05	3.01	2.84	2.86
	SD	0.61	0.54	0.67	0.69
	n	12	12	12	12
Total	M	3.08	2.98	2.90	2.92
	SD	0.56	0.58	0.60	0.65
	n	29	29	28	29
Prosocial Composite					
Mother Only	M	2.81	3.13	3.08	3.10
	SD	0.39	0.39	0.45	0.53
	n	17	17	16	17
Both Parents	M	2.54	3.10	3.28	3.13
	SD	0.75	0.71	0.77	0.72
	n	12	12	12	12
Total	M	2.70	3.12	3.17	3.11
	SD	0.57	0.53	0.60	0.60
	n	29	29	28	29
Affectionate					
Mother Only	M	3.27	3.27	3.08	3.02
	SD	0.56	0.67	0.67	0.66
	n	17	17	16	17
Both Parents	M	2.87	2.76	2.96	2.71
	SD	0.93	1.19	1.12	0.88
	n	12	12	12	12
Total	M	3.11	3.06	3.03	2.89
	SD	0.75	0.94	0.88	0.76
	n	29	29	28	29

Table 11
Point Biserial Correlations for Intervention Format Comparisons on the Composite Intervention Measures

Composite Scale		Time Period T1.1-T1.0	T1.2-T1.1	T1.3-T1.2	T1.2-T1.0	T1.3-T1.0
Negative Composite	r	.14	-.14	-.07	-.03	-.06
	n	29	28	28	28	29
Prosocial Composite	r	.22	.27+	-.15	.36*	.27+
	n	29	28	28	28	29
Affectionate	r	-.10	.32*	-.16	.21	.07
	n	29	28	28	28	29

Note. A positive correlation indicates that the Both Parents group changed more in the expected direction than did the Mother Only.
+ $p < .10$; * $p < .05$; ** $p < .01$; one tailed.

The effect correlations for Affectionate show a significant difference favoring the Both Parents format over the Mother Only format for the period from T1.1 to T1.2. No difference between the two formats was found over the T1.0 to T1.1 interval or over the T1.2 to T1.3 interval. Over the course of the intervention program, the Both Parents format shows a slight advantage over the Mother Only format. However, over the course of the intervention plus followup periods there is no lasting advantage to either format.

In summary, the data indicate that the Both Parents format is more effective than the Mother Only format with respect to increasing prosocial behavior and affectionate behavior toward the parents.

Analysis of Statistical Power. To determine the power of the results obtained in the analysis of Hypotheses A and B, a power analysis (Cohen, 1988) was conducted. For this analysis, an alpha level of .05 one tailed was used as this value of alpha corresponded to the principal significance level in the foregoing analyses. Using this value of alpha and the N of 52 for Hypothesis A, shows that an effect correlation must be equal to .35 to have a power of 80% (beta equal to .20). That is, to have a 20% chance or less of accepting the null hypothesis when it is actually false, a type II error, the effect correlation must be at least .35. Conducting the same analysis for Hypothesis B, but with the N of 29, shows that the observed effect correlation must

be equal to .45 to have a power of 80%.

Discussion

In the preceding evaluation of this project, data were presented to assess the success of the project with respect to three criteria: recruitment, retention, and intervention effectiveness.

Recruitment

The recruitment data gathered indicated that this project was successful in its recruitment strategy as 74% of the men agreed to allow their names to be released and 90% of those families agreed to take part in the study for an overall recruitment rate of 67%. Meaningful comparisons with other projects are difficult because projects such as this are unique and because recruitment data seldom are reported. One project that did report recruitment data was the Milwaukee project (Garber, 1988). This project, which offered an intensive, child focused intervention to poor, inner city, low IQ mothers of six month-old-children, reported that only three out of 58 families could not be recruited (95% recruitment rate). While the recruitment rate calculated for the Milwaukee project is substantially higher than the rate for the current project, the differences in populations are very substantial. The most salient differences between the populations are that the recruitment criteria for the Milwaukee sample were not based on the

behavioral difficulty of the parents but rather were based on the visible and probably more compelling difficulty of the child and the easier to solicit cooperation of just the mother. By contrast, this project solicited the cooperation of fathers to allow an entre to their family.

The role of recruitment is obviously very important for the success of any research project. If the desired sample can not be recruited, the project will not be able to evaluate its hypotheses. In this project, a quite complicated package of incentives was used to encourage participation. A partial list would include affiliation with a prestigious university, involvement in a research project, monetary compensation, association with interesting, socially attractive people, and a potential increase in knowledge about self, family, and children. The recruitment data demonstrates that the package was successful. Yet, it can not be said with any definiteness which elements of the package were most salient for successfully recruited families, or why no element seemed to appeal to other families.

Questions of motivation for participation are quite important because when a successful demonstration project is replicated in a new setting the incentive package may not be able to be exactly duplicated. For example, if this program were implemented by a community mental health board, the participation incentive package that the it could offer would very likely be quite different from the one described

here. Would the recruitment be as successful? This is an empirical question that can be answered under the rubric of dissemination research (Fairweather & Tornatsky, 1977). But, to begin such research, questions of motivation and incentives must be treated empirically from the beginning.

Attrition

The 49% overall attrition rate found in this study appears to be "in the ballpark" when compared with other treatment or intervention studies. For instance, the Parent-Child Development Centers' data (Andrews et al., 1982) indicate 25% to 50% attrition rates for subjects in the control groups. (Control groups in these programs are probably more comparable because mothers in the program group could not hold jobs or attend school and also be in the program. Thus, the attrition rates for the experimental groups were inflated by this fact.) The dropout rate in the Milwaukee study, (Garber, 1988) was 28% for the intervention group. In Forehand et al.'s (1983) review of dropout rates from parent training programs, the average dropout rate was 28% with a range of 0% to 50%. In the review of attrition from general psychiatric clinics, Baekeland and Laundwall (1975) found that 20% to 57% did not return after just one visit and 31% to 65% attended four or fewer sessions. More than just global comparisons of the attrition rates for the different studies would be unfair owing to the unknown effects of the differences among them (e.g., attrition from control groups do not catch persons dissatisfied with the

intervention, treatment studies draw from a pool of persons presenting themselves for intervention, and the Milwaukee study did not require father participation).

In their review of dropout rates in the general therapy literature, Baekeland and Laundwall (1975) recommend that dropout rates be calculated at several different points over the course of the intervention program. Their recommendation is based on the rationale that the characteristics of families dropping out of an intervention program at an early phase may be quite different from those of families dropping out at a later phase. Forehand et al.'s (1983) review of the parent training literature echoes these points and also suggests that multiple treatment condition data be examined separately rather than simply being lumped together under the assumption that the intervention condition does not affect dropout rates. Together, these ideas describe a multifactorial model in which dropout is governed by both intervention design characteristics and client characteristics that depend on the time that dropout occurs. Stated another way, this model proposes that the combination of factors predictive of dropping out might be different at different stages of the intervention. However, little followup of these points has occurred beyond sometimes reporting dropout rates for assessment and intervention stages.

Looking first at intervention characteristics, Forehand et al.'s data (Table 1, p. 664) indicate that the dropout

rate for the assessment phase was 13% and for the treatment phase was 14%. The current program's assessment phase dropout rate was similar at 11%, but the treatment phase dropout rate was much higher at 38% (counting partial completion families as dropouts). The source of the difference in the treatment phase dropout rates between Forehand et al. and this study is that 26% of the families in this study dropped out in the first four sessions. Furthermore, the majority of the families dropping out at this stage were from the Both Parents format condition. Client characteristics -- in so far as the salient characteristics were measured -- can be ruled out as an explanation because tests of the random assignment procedure showed no between group differences. Thus, the data suggest that engaging both parents in an intervention program is much more difficult than engaging just the mother. (The traditional interpretation of this data, that fathers are difficult to involve in an intervention program, is not technically correct - though it may be clinically - since such a conclusion requires a father only group in addition to a mother only group and a both parents group.)

Turning to the analyses of client characteristics, no differences between the groups of dropout families were found. Thus, likelihood of dropping out of this intervention did not depend on the characteristics examined. The parent training literature has little to say about the characteristics of dropout families. Forehand et al.'s

review noted two studies, (McMahon, Forehand, Griest, & Wells [1981], Behavioral Counseling Quarterly and Worland, Carney, Weinberg, & Milich [1982], Behavioral Counseling Quarterly) that have reported data on characteristics of families dropping out of parent training programs. Forehand et al. report that McMahon et al. found parental depression to be associated with dropout and that Worland et al. found low socio-economic status to associated with dropout. One additional study, (Firestone & Witt, 1982) compared treatment dropout, treatment refusal, and treatment completer families on child behavior variables and found no differences between the three groups of families. Thus, the current study is at odds with the two studies cited by Forehand et al., but in agreement with the Firestone and Witt study. In view of the qualitative differences between the non-referred sample in this study and the self-referred samples in the other studies, little more may be safely said.

Intervention Effectiveness

The evaluation design used in this study was an advance over those previously reported in the literature in the following respects: 1) the use of a mid-treatment probe (T1.1), 2) the use of measures of prosocial, affectionate, and inhibited behavior in addition to negative behavior, and 3) the integration of parent report data from both parents in a measurement model.

In this evaluation design, the mid-treatment probe data were gathered when the intervention's focus shifted from child problems to parent relationship problems. Therefore, it should provide the best estimate of the program's effectiveness at increasing prosocial behavior and decreasing negative behavior subject to the assumption that both contracting and timeout use had reached their maximal level of effectiveness. While mid-treatment probes have been reported before (e.g., Patterson, 1974; Patterson & Reid, 1973), they have not been explicitly tied to the intervention's focus or used in the outcome analysis.

Measures of prosocial and affectionate behavior have been used by only two studies (Webster-Stratton, Kolpacoff & Hollinsworth, 1988; Fleischman & Szykula, 1981). However, both studies lumped prosocial and affectionate behavior together. Measures of prosocial behavior are quite important because they measure the extent to which the children are acting appropriately rather than just noncoercively.

Measures of inhibited behavior have not been used before and are important in several respects. A significant effect on these measures would suggest either a global bias by parents to report change everywhere or a genuine effect of the intervention. While the type of intervention used here could have an effect on inhibited behavior, perhaps as a secondary effect, it is unlikely because a different type of intervention is recommended for inhibited behavior. Thus, the measures of inhibited behavior should function as a test

of a global bias.

Collecting parent report data from both parents has only been routinely done by the OSLC group. Even when data from both parents have been collected, the data most often are analyzed by treating mothers and fathers separately. In this study, a measurement model was used that integrated the perceptions of both parents while minimizing the perceptual bias of either parent.

Hypothesis A. Over the course of the intervention plus followup period, overt negative behavior as measured by the negative composite declined significantly from pretest to the mid-treatment probe at T1.1, declined an additional but nonsignificant amount from mid-treatment to termination, and then increased significantly during the followup period. Overall, no net change in overt negative behavior was found. Therefore, the results are mixed for overt negative behavior because while a significant decrease was observed during the intervention period, the decreases disappeared after the intervention ended.

The mixed character of the results observed here appear, at first glance, to be somewhat at odds with the conclusions of the existing parent training literature. While the details of how this study compares to the existing literature shall be presented in a moment, it must be reiterated that the families in this study are similar to, but different from the samples of families used in all other parent training studies and the cited prevention studies.

While the presence of significant levels of child aggression and conduct problems is the point of similarity with other studies, the presence of significant parental alcohol problems in all families sets this study apart from other parent training studies.

During the intervention period, the results of this study are in accord with the results of other parent training studies. At the mid-treatment probe, the most comparable data are termination data for those programs which had no parent relationship component and end with timeout and contracting (e.g., Forehand, 1977; Webster-Stratton et al., 1988). The reductions in negative behavior found here are consistent with the results found in studies that used observational data.

The only parent training data comparable to the mid-treatment to termination period in this study are those reported by Patterson (1974) and Patterson and Reid (1973). In these studies the key comparison is between the eighth week of treatment data and the termination data. From the program description in Patterson, Cobb and Ray (1973), the eighth week is near the end of the child focused program and, thus, somewhat similar to mid-treatment in the current study. Inspection of the means for the Patterson data indicates that some additional reduction in negative behavior occurred after the eighth week but not a large amount.

Over the course of the intervention period (T1.0 to T1.2), the results are quite comparable to those in the literature -- a significant reduction in negative behavior occurred.

The results for the followup period (T1.2 to T1.3) depart sharply from those of other studies. Previous studies (e.g., Patterson, 1973; Fleischman, 1981; Fleischman & Szykula, 1981; Forehand & King, 1977; Forehand et al., 1979) did not find a rebound effect. The conclusion that parent training studies show no rebound was subsequently verified using data presented by Fleischman (1981) for both his study and Patterson's (1973). In both studies, the data consisted of an observational measure that was collected at termination and at three equally spaced followups over the following year. The two data sets were pooled and dependent sample t-tests conducted on adjacent pairs of means. The results were as follows: at termination, the mean (standard deviation) was .36 (.30); at post 1, .40 (.27); at post 2, .39 (.41); and at post 3, .39 (.25). None of the t-tests were significant.

The absence of a rebound effect was also reported in two long term followups of children (both boys and girls) in the Houston Parent-Child Development Center project. The first followup was conducted one to four years after program completion and used mother reports. It found that children receiving the intervention were less destructive than control group children (Andrews et al., 1982). The second

followup was conducted five to eight years after program completion and used teacher reports. It found that intervention children had lower levels of acting out type problems (fighting, restlessness, obstinacy, and disruptiveness) than control children (Johnson & Walker, 1987).

Over the course of the intervention plus followup period, prosocial behavior increased significantly from pretest to the mid-treatment probe, and then did not change from either mid-treatment to termination or over the followup period. Thus, the initial increase was maintained. Affectionate behavior also increased significantly over the course of the intervention and did not decline in the followup period. Overall, a net increase in both prosocial behavior and affectionate behavior was found and, therefore, it can be concluded that the intervention was effective in changing these behaviors.

Two studies, Webster-Stratton et al. (1988) and Fleischman and Szykula (1981), included a measure that combined prosocial and affectionate behaviors. Webster-Stratton et al.'s study was a pre-post design while Fleischman and Szykula's study used three followups over a one year period. The Webster-Stratton study did not include a marital communication component at all, but the Fleischman and Szykula may have included marital interventions for some parents. As in the current study, both Webster-Stratton et al. and Fleischman and Szykula found significant increases

in prosocial behavior at termination. In addition, Fleischman and Szykula found that the increase in prosocial behavior noted at termination remained for each of the three followups.

No changes were noted for the three types of inhibited behaviors (Insecure, Cries, and Shy) over either the intervention or followup period. No changes were expected on these measures because the types of intervention techniques used in this study have been developed for excesses of negative behavior. Thus, the lack of change on these measures is evidence for the specificity of the intervention program.

It had been expected that the six negative behavior scales would be similarly affected by timeout. However, the data indicated that Property Damage and Delinquent were relatively unaffected by the intervention. These results can be understood if age graded developmental considerations are taken into account. Behaviors such as those represented by Delinquent are generally later developing than are aggressive behaviors and occur in the age range children in this study only rarely as Achenbach and Edelbrock's (1981b) data show. Thus, the mean level of Delinquent behavior would be expected to be very low -- as the data are -- because very few children have started doing these behaviors. Behaviors indicative of the Property Damage scale generally show a decrease with increasing age as noted by Achenbach and Edelbrock. The same trend is found here.

These data, especially for Property Damage, can also be understood if the distinction between overt and covert behavior made by Loeber and Schmaling (1985) is applied to parent training observations. Overt behavior is exemplified by items such as attacks people, argues, and teases while covert behavior is exemplified by items such as alcohol/drug use, truant, steals, and destructive. Therefore, Aggression, Anger Arousal, Defiant, and Hyper are examples of overt behavior while Property Damage and Delinquent are examples of covert behavior. Patterson and Reid (1976) and Patterson (1982) have found that children and youth engaging in high levels of covert behavior either alone or in addition to overt behavior do not respond well to the traditional parent training protocol. To intervene with covert behavior, Patterson and Reid report that special techniques are needed. Because the present intervention was targeted at conduct problems -- overt behavior -- covert behavior would be expected to show little response.

Thus far, the results have indicated that significant decreases in negative behavior and increases in positive behavior were found. By implication, these changes have been ascribed to the intervention. However, are there other factors (threats to validity) which might have affected the patterns of results seen -- either by skewing results or by measuring other than what was intended?

One such threat is differential attrition due to the intervention. This threat refers to differences induced

between the intervention and control groups due to the families dropping out of the intervention at different points during the study. If, for example, the worst off families dropped out or declined the intervention. As reported earlier, those families who either refused the intervention, or received only partial treatment were not significantly different from families remaining in the intervention in terms of demographic characteristics, parent functioning, and child behavior. Thus, this threat may be discarded.

The second and more important threat concerns measurement. The parent training literature is characterized by the view that some form of home or clinic observation is the preferred outcome measure. Patterson and his colleagues are the leading proponents of this view and they argue that parent global reports are reactive, biased, and show treatment effects when none exist (Patterson, Cobb & Ray, 1973; Patterson (1982); Patterson & Chamberlain, 1988). Patterson (1982, p. 43) uses the term parent global report to mean ". . . attempts by parents to synthesize information from extended time periods (e.g., more than 24 hours) and/or covering a range of broad spectrum variables which are defined by conventional usage (e.g., such terms as 'warmth' or 'destructive')." This definition of global report would include all instruments in this study except for the PDR-M. Thus, to the extent that this view is true, it threatens the results of the current evaluation.

The reactivity to treatment argument against parent global report is based on research which shows that parents of referred children report their children to be better even though no treatment had been delivered (e.g., Collins, 1966; Peed, Roberts & Forehand, 1977). These data could be explained by regression to the mean. It is likely that children are referred when their behavior is at its worst. Thus, any subsequent measurement would most likely be lower and tend to look like a treatment effect. Since the children in this study were not referred, treatment effects because of regression to the mean seems unlikely.

In terms of the content domains assessed, the internal consistency of the measures used, the results of this study are believed to be reasonably immune to the real or suspected problems that have plagued other parent training studies using parent report measures.

The program can not be described as fully effective because it did not achieve its goal of producing long term decreases in conduct problems. While the gains in prosocial and affectionate behavior are certainly noteworthy and are probably appreciated by the parents, there is no evidence that increased prosocial behavior reduces later conduct problems. In fact, attempts (e.g., Patterson, Ray & Shaw, 1968) to use positive reinforcement techniques to increase prosocial behavior and, thereby, replace negative behavior failed. Out of these failures came the practice of using punishment (i.e., timeout) to reduce negative behavior.

Why was this intervention program only partially successful? This is a complicated question and this report does not contain all the data necessary to answer the question. However, I do think that a plausible scenario can be constructed to guide further inquiries in this area.

Intervention programs are usually treated as unitary wholes when evaluations are conducted. That has certainly been the approach here and in the parent training literature. However, this type of evaluation approach can only state whether or not the program worked for the sample receiving the program. In the following development, I will use the idea that an intervention program is a coordinated organization of intervenors, intervention techniques, and a program format that engages with a group of clients.

The two distinctions between this program and other parent training programs are the uniform presence of serious alcohol problems in the families taking part and the outreach orientation of the program. As the review of the development of conduct problems indicated, parental alcoholism is associated with an increased occurrence of conduct problems in the offspring. As the review also indicates, other problems are also associated with an increased occurrence of conduct problems. Previous parent training studies that have used samples selected on the basis of child behavior have implicitly selected families with a random sampling of those factors that are associated with conduct problems. In contrast, this study has selected

a set of families with a single particular risk factor -- paternal alcoholism. What are the consequences of this difference?

The most salient consequence for this discussion is that the supportive and maintaining effects of the parental alcoholism and co-occurring sequela must be addressed to the extent that they impede the principal focus of the therapeutic work. The impression of the clinical supervision staff was that continuing parental alcohol and drug use and marital issues very quickly entered even the child focused work. As, for instance, when paternal drinking out of the home effectively sabotaged contracting and timeout. Thus, to maintain the initial foothold, changes in supporting factors had to gained as well.

Recent work by O'Farrell (1989) suggests that after persons have reduced or stopped their drinking entirely a period of time is required for the alcoholic to consolidate his commitment to the change and to integrate the change into his life and his relationships with others. For some families, these changes began before or during the intervention study. O'Farrell also makes the point that relapses are a common occurrence during the initial stages of stopping drinking and that booster sessions or followup sessions at later intervals are needed to address relapses. To the extent that conduct problems covary with the familial consequences of drinking, then relapses in child behavior might follow drinking relapses. And, like booster sessions

for recovering alcoholics, the same might be needed to further solidify previous child focused work.

The second distinction is the outreach orientation of this program. While this orientation is the only way to reach a population that seeks assistance reluctantly and tentatively, it also means that the motivational impetus to seek help is likely different from that of self-referred or court referred parents. While most mothers in the program acknowledged that their child was a problem at times, this was not always true of the fathers. However, a child that is a problem at times is not necessarily a problem child or even one whose problems merit some therapeutic work. Thus, one of the purposes of the tracking module and the discussion surrounding its use was to help the parent to confront the actual levels of identified problem behavior before beginning the work to change the child's behavior.

These, then, are the issues that the families brought to the intervention. The hypothesis is that the degree to which these issues are successfully addressed by the program is indicative of the success the families will have and the program can report.

To think about how the intervention program worked with families, the technique described by Hunter (1987) is quite useful. The first step is to construct a process model of the intervention. From Hunter (personal communication, November, 1990), a simple process model would state that an increase in contracting leads to an increase in prosocial

behavior and an increase in timeout usage leads to a decrease in negative behavior. Patterson and Chamberlain (1988) describe and report data on an equivalent model where noncooperativeness predicts increased aversive behavior. For the pretest to mid-treatment interval, the results found in the evaluation indicate that parents used both contracting and timeout. In terms of the model, the lack of continued change from mid-treatment to termination suggests that parents may not have used either contracting or timeout very consistently. Likewise, the changes from termination to followup suggest that the families may have stopped using both techniques.

If this model is borne out by an examination of the intervention session data, then attention should be focused next on therapist-client interaction. Patterson and Chamberlain (1988) and Chamberlain, Patterson, Reid, Kavanagh and Forgatch (1984) have found that although therapists use a variety of techniques (e.g., teaching, confronting, supporting, and joining) in working with clients, certain techniques are more effective than others. Increased use of teaching and confronting, although associated with an increased within-session struggle between parent and therapist about the work, was found to be effective in moving the therapeutic work forward as the struggle meant that the parents were engaged. While teaching and confronting heighten within-session struggle, Patterson and Chamberlain suggest that reframing, supporting, and

joining techniques serve to manage the level of the struggle. Collectively, these techniques and their appropriate use might be termed therapeutic skill. Thus, the data suggest (again, see Patterson and Chamberlain for further background) a therapy process model in which increased therapeutic skill leads to increased parental cooperativeness.

Patterson and Chamberlain (1988) found that the within-session struggle for the parents took the form of the parents' challenging and confronting the therapist, between parent conflict, or parental helplessness. Families characterized by challenging and confronting were found to be more compliant and cooperative as measured by completion of homework. Families whose within-session struggle was characterized by either conflict or helplessness were less compliant and cooperative.

Thus, the revised model would predict that increased therapist skill would be associated with increased parent cooperativeness and that increased cooperativeness would be associated with increased behavior change (see Patterson and Chamberlain [1988] for further background). (I should note that this hypothesis is currently being examined by Cindy Nye, but, as of this time, her analyses are not yet completed.)

It should be crystal clear in the preceding discussion that while the parents and their therapist are equal participants in a session, the therapist is solely

responsible for the conduct of the session and bears the responsibility for defusing and reframing parental conflict or helplessness.

While the preceding models were developed in terms of child behavior intervention techniques, the models also apply to work with parents to impact drinking, drug use, conflict or other issues judged to be impeding the child focused work. Thus, the noncooperativeness of the mother to engage her husband in a discussion of the consequences of his drinking or of the father to use communication and relationship building techniques to improve their marital relationship must also be considered noncooperativness.

If the therapy process model is supported by the data, four possibilities seem to follow. First, the intervenors may not have been able to bring enough therapeutic skills to bear on the issues presented by these families. This possibility is consistent with the therapy model articulated by Patterson (1985) in which therapeutic skill, intervention techniques, and therapist support were identified as necessary components of a program for working with families with antisocial children. Thus, if the mother was able to interrupt and derail the work by using the sessions as a forum to attack her husband, then skill level of the therapist had to be sufficient to address this issue and restart the work.

Second, the therapeutic skills may have been sufficient but there wasn't sufficient therapeutic time to address all

the issues that needed attending. For example, compare a family where the parents are skeptical but willing to try some new ideas, there is some conflict between the parents over dad's drinking and other issues, and mom is feels a little hopeless about the future with a family where one or both parents are very aggressive with their children, neither parent feels much hope of things ever getting better, and dad is drinking heavily and both parents are fighting, sometimes physically, with each other. This explanation then argues that the intervention format (i.e., the number and scheduling of sessions and extra session contacts need to be increased for at least some families).

Third, some families may have not yet been able to sustain the work on their own once the intervention ceased. Thus, booster or supplementary sessions may be needed by some families (as used by Patterson, 1974). The work of O'Farrell (1989) is particularly relevant here because of his work with alcoholic families. Fourth, it may be that additional and external pressure needs to be brought to bear on the families. Such pressure could be applied if a public health model were used by the courts in working with alcoholic fathers.

Hypothesis B. The Both Parents group was found to be no more effective than the Mother Only group in reducing overt negative behavior. However, a slight but consistent advantage was noted for the Both Parents group on measures of both prosocial behavior and affectionate behavior.

Overall, children engaged in more prosocial behavior when both parents were involved in the intervention than when just the mother was involved.

The results found in the current study for overt negative behavior are consistent with the small literature on father involvement in parent training. Horton's (1984) review of father involvement consisted just three studies. Each study was quite small in size (18 families or less), involved young, preschool and school-age children, and the families were recruited from schools or referred from clinics. As with other parent training studies, the families in these studies were selected on the basis of child problems. Thus, none of the three father involvement studies probably had a set of families in the parents themselves had significant problems.

The results showed that all three studies (Martin, 1977; Firestone, Kelly and Fike, 1980; Adesso & Lipson, 1981) found that both mother only formats and both parents formats produced reductions in negative behavior at posttest relative to a control group. However, none of the studies found a convincing advantage for the both parents format relative to the mother only format.

The advantages found for the Both Parents groups for prosocial and affectionate behavior are unique as no comparable data has been reported in the literature on this point.

While the conclusion for negative behavior is consistent with the parent training literature, it is not understandable in terms of the intervention theory. In fact, the finding of no advantage for negative behavior contradicts the intervention theory for the same reason that the results for prosocial support it -- because both parents were taught the techniques and supported in their use, the implementation should have occurred more quickly and with less interparent conflict and, thereby, produced greater behavior change.

The reasons for the seemingly discrepant results is intriguing and, at the current time, unknown as data pertinent to this point have not been analyzed. Thus, possible explanations must be considered speculative. The advantage noted for the Both Parents group for prosocial behavior suggests several possibilities. It may have been that mothers in the Mother Only format did not receive their husband's support and participation (or worse, received skepticism from him) for contracting. Thus, their motivation for continuing contracting would be likely not be very high. Alternatively, it may have been that mothers in the Mother Only format used the sessions as a support system (to partially compensate for the lack of support from their husband) and a forum from which to attack their husbands. To the extent that the therapist permitted this to continue, the result would likely be to increase conflict and reduce the support of prosocial behavior (as well as affectionate

behavior).

Overall, the data from this study on the benefits of father involvement are mixed. At this point, it appears that having fathers involved won't hurt and certainly helps where prosocial and affectionate behavior are concerned. Thus, the case on father involvement should not be closed. The question of father involvement should be kept open for another reason as well. Both cross-sectional and longitudinal studies reviewed by Loeber and Stouthamer-Loeber (1986) point to a positive relationship between marital conflict and conduct problems. Also, work by Cummings, Iannotti and Zahn-Waxler (1985) indicates that children witnessing staged, angry verbal interchanges between adults subsequently interact more aggressively with peers. These data would indicate that parent training programs should include a marital relationship component -- as this program did. However, two questions need to be evaluated. First, it remains to be shown that improvements in the marital relationship lead to improvements in child behavior. Second, can an acceptable quality of marital work be carried out with the involvement of only one spouse?

Other Issues. The results of the intervention program can also be looked at in ways that say something about the dynamic relationships of the three variables measured. The intervention constituted an experimental manipulation which taught and encouraged parents to contingently reward children for acting in agreed upon ways and contingently but

nonviolently punish negative behavior. In addition, parents were exposed to techniques intended to help work out areas of conflict between themselves and some work on these issues was done in the latter part of the intervention. The extent to which this actually occurred, the manipulation checks, is described in the homework records and in the case notes.

Looked at in this way, a number of interesting questions can be posed. For example, to what extent are the changes observed in Affectionate a consequence of the changes observed in Prosocial Composite, Negative Composite, both, or a third variable (e.g., conflict)? As the latter part of the intervention focused on reducing marital and family conflict, reductions in conflict should follow and a possible 'opening up' of the emotional atmosphere. From the work of Cummings, Iannotti and Zahn-Waxler (1985), reduced conflict would lead to reduced aggression and angry outbursts. However, decreased child overt negative behavior would also present fewer chances for conflict to develop. Future analyses will focus on the dynamic relationships between parent/family variables such as conflict and child behavior.

Summary and Conclusions

This study was an evaluation of a preventative intervention program for intact families with an alcoholic father and a three to six year old male child. Families were primarily recruited by way of a population net of all men convicted of driving under the influence in a four county area. Participating families were randomly assigned to either one of two intervention formats or a control group. The intervention used an educational approach to teach families the techniques of contracting and timeout to increase prosocial behavior and decrease negative behavior, respectively. The intervention also included a component to help parents increase their ability to resolve problems between themselves and to communicate with each other more effectively. Two different intervention formats were used to evaluate the importance of including fathers in the intervention program.

The evaluation addressed questions of effectiveness in terms of recruitment, attrition or dropout, and behavior change. The results indicated that the incentive package used by the program was effective in inducing families to take part. The results showed that the dropout rate was in the range of those found by other parent training programs and also in several other preventative intervention programs. The results also showed that the dropout rate depended on the intervention format with the Mother Only format having a much lower dropout rate than the Both

Parents format.

The effectiveness of the program in reducing negative behavior and increasing positive behavior was evaluated by data collections conducted at mid-treatment, termination, and six month followup. The results showed a significant reduction in negative behavior during the intervention which returned to baseline levels over the followup period. The results showed a significant increase in prosocial behavior during the intervention which persisted through the followup period. The results also showed a significant increase in child affection toward the parents during the intervention which also persisted over the followup.

No differences in negative behavior was noted for the format which included both parents versus only mothers. A slight advantage was noted for the both parents format on prosocial behavior and affectionate behavior.

Overall, the intervention was concluded to be partially effective because it had failed to produce lasting decreases in negative behavior. In a post hoc analysis of possible reasons for the lack of a sustained reduction in negative behavior, it was proposed that 1) the levels of therapeutic skill were not sufficient to address the embedded multi-problem nature of alcoholic families; 2) additional sessions or supplementary sessions at a later time might be needed for some families to sustain gains in behavior; and 3) additional pressure might be brought to bear on families to increase compliance with the regimen.

APPENDICES

Appendix A

Compensation Schedule for Families in the Intervention Study at Different Times During the Course of the Study

The compensation schedule has been revised as shown.

In all versions the following procedure applied. Families in the Mother Only or Both Parents groups who did not participate in the intervention program for any reason were paid at the Control group rates for data collection work.

Revision 0 (8-17-85)

Mother Only and Both Parents Groups

1. Initial Assessment	(T1.0)	100 dollars
2. Post test 1	(T1.1)	150 dollars
3. Post test 2	(T1.2)	0 dollars
4. Post test 3	(T1.3)	150 dollars
5. Post test 4	(T2.0)	150 dollars

Control Group

1. Initial Assessment	(T1.0)	100 dollars
2. Post test 1	(T1.1)	0 dollars
3. Post test 2	(T1.2)	0 dollars
4. Post test 3	(T1.3)	50 dollars
5. Post test 4	(T2.0)	125 dollars

Revision 1 (6-18-86)

Mother Only and Both Parents Groups

1. Initial Assessment	(T1.0)	125 dollars
2. Post test 1	(T1.1)	150 dollars
3. Post test 2	(T1.2)	0 dollars
4. Post test 3	(T1.3)	150 dollars
5. Post test 4	(T2.0)	150 dollars

Appendix A (cont'd)

Control Group

1. Initial Assessment	(T1.0)	125 dollars
2. Post test 1	(T1.1)	25 dollars
3. Post test 2	(T1.2)	0 dollars
4. Post test 3	(T1.3)	50 dollars
5. Post test 4	(T2.0)	125 dollars

Revision 2 (4-27-87)

Mother Only and Both Parents Groups

1. Initial Assessment	(T1.0)	125 dollars
2. Post test 1	(T1.1)	150 dollars
3. Post test 2	(T1.2)	0 dollars
4. Post test 3	(T1.3)	150 dollars
5. Post test 4	(T2.0)	150 dollars

Control Group

1. Initial Assessment	(T1.0)	125 dollars
2. Post test 1	(T1.1)	40 dollars
3. Post test 2	(T1.2)	40 dollars
4. Post test 3	(T1.3)	40 dollars
5. Post test 4	(T2.0)	125 dollars

Revision 3 (12-14-88)

Mother Only and Both Parents Groups

1. Initial Assessment	(T1.0)	125 dollars
2. Post test 1	(T1.1)	150 dollars
3. Post test 2	(T1.2)	0 dollars
4. Post test 3	(T1.3)	150 dollars
5. Post test 4	(T2.0)	200 dollars

Control Group

1. Initial Assessment	(T1.0)	125 dollars
2. Post test 1	(T1.1)	60 dollars
3. Post test 2	(T1.2)	60 dollars
4. Post test 3	(T1.3)	60 dollars
5. Post test 4	(T2.0)	250 dollars

Appendix B

Test of the Randomly Assignment of Families to Condition on Child Behavior Composites, Demographic, and Parent Functioning Variables (N = 104)

Variable		Mother Only	Both Parents	Control	F Value of Effect Grp	Par	GxP
Negative Composite	M	12.53	12.17	11.80	0.67	NA	NA
	SD	2.37	2.75	2.48			
	n	35	39	30			
Prosocial Composite	M	8.62	8.25	8.75	0.81	NA	NA
	SD	1.45	2.06	1.47			
	n	35	39	30			
Affect-ionate	M	3.21	2.98	3.14	1.19	NA	NA
	SD	.58	.74	.64			
	n	35	39	30			
Child Age	M	4.62	4.76	4.43	0.65	NA	NA
	SD	1.23	1.24	1.04			
	n	33	37	30			
Family SES	M	29.24	29.54	30.50	0.07	NA	NA
	SD	9.65	15.65	15.50			
	n	35	38	30			
Beck Depression							
Mom	M	3.81	5.13	3.10	1.22	6.10*	2.19
	SD	3.38	4.46	3.23			
	n	33	37	30			
Dad	M	3.36	3.00	2.73			
	SD	3.41	3.77	2.82			
	n	33	37	30			
Total Antisocial Behavior							
Mom	M	13.12	15.27	14.26	0.18	32.30***	1.51
	SD	8.33	7.63	9.82			
	n	31	36	30			
Dad	M	26.38	21.47	23.60			
	SD	17.71	15.99	12.77			
	n	31	36	30			

Appendix B (cont'd)

Variable		Mother Only	Both Parents	Control	F Value of Effect Grp	Par	GxP
Lifetime Alcohol Problems							
Mom	M	9.68	9.91	10.39	0.23	3.90*	1.18
	SD	1.88	1.92	2.09			
	n	32	35	30			
Dad	M	10.54	10.61	10.34			
	SD	1.69	2.09	2.01			
	n	32	35	30			
Parent's Age							
Mom	M	28.68	29.55	29.83	0.82	35.74***	0.20
	SD	4.24	5.18	4.08			
	n	35	38	30			
Dad	M	30.57	31.92	31.80			
	SD	4.81	4.98	4.20			
	n	35	38	30			
Parent's Education							
Mom	M	12.57	12.63	12.93	0.87	1.50	0.32
	SD	1.59	1.97	2.35			
	n	35	38	29			
Dad	M	12.40	12.10	12.79			
	SD	1.80	1.72	2.17			
	n	35	38	29			

Note. The Grp effect is the between subjects effect for Mother Only vs Both Parents vs Controls; the Par effect is the within subjects effect for parent; and the GxP is the Grp by Par interaction effect.
*p < .05, **p < .01, ***p < .001.

Appendix C

Item Definitions for Compound Scales Used in Analysis

Table 12
Items Comprising the Anger Arousal Compound Scale

	Item Definition
CPQ-M Anger	
09	Has temper outbursts, explosive and unpredictable behavior
46	Mood changes quickly and drastically
CBCL Anger	
68	Screams a lot
86	Stubborn, sullen, or irritable
87	Sudden changes in mood or feelings
88	Sulks a lot
95	Temper tantrums or hot temper
104	Unusally loud

Note. Item numbers correspond to the instrument numbering system.

Appendix C (cont'd)

Table 13
Items Comprising the Aggression Compound Scale

	Item Definition
CBRS-P Aggression	
56	Pushes, hits if doesn't get way
62c	When angry, mad, frustrated: hurts others (pushes, kicks, hits)
62b	When angry, mad, frustrated: destroys property (tears books, breaks toys, throws things)
62a	When angry, mad, frustrated: has temper tantrums, yells, cries, screams, jumps up and down
55	Argues or fights with brothers, sisters, friends
62d	When angry, mad, frustrated: stays mad for a long time
CPQ-M Aggression	
04	Bullying
07	Disturbs other children
23	Mean towards brothers and sisters
29	Throws and breaks things
38	Carries a chip on his/her shoulder
41	Fights constantly with brothers and sisters
42	Picks on other children
CBCL Aggression	
15	Cruel to animals
16	Cruelty, bullying, or meaness to others
37	Gets in many fights
57	Physically attacks people
97	Threaten people
PDR-M Aggression	
1f	Argues or fights with sibs/friends
1g1	When angry: has temper tantrums
1g2	When angry: has yells, cries, screams
1g3	When angry: destroys property
1g4	When angry: hurts others
1g5	When angry: stays mad for a long time

Note. Item numbers correspond to the instrument numbering system.

Appendix C (cont'd)

Table 14
Items Comprising the Defiant Compound Scale

	Item Definition
CBRS-P Rude	
38	Ignores you when asked questions or given a direction
39	Talks back, sasses when asked question or given a direction
42	Interrupts
47	Bugs parent when talking on phone or to company
40	Talks in a loud voice
50	Takes things for granted (just expects you to go out of your way for him)
CPQ-M Defy	
17	Disobeys parents
39	Sassy to grown-ups
CBCL Disobey	
22	Disobedient at home
23	Disobedient at school
43	Lying or cheating
CBCL Rude	
3	Argues a lot
19	Demands a lot of attention
27	Easily jealous
90	Swearing or obscene language
93	Talks too much
94	Teases a lot
109	Whining

Note. Item numbers correspond to the instrument numbering system.

Appendix C (cont'd)

Table 15
Items Comprising the Hyperactive Compound Scale

	Item Definition
CBRS-P Hyper	
59	Acts, reacts without thinking
58	Is restless, can't sit still (in car, watching T.V.)
66	Complains that 'is bored' and doesn't find something to do
CPQ-M Nervous	
08	Restless or overactive
15	Constantly fidgeting; restless in the "squirmy sense"
35	Acts as if driven by a motor
CPQ-M Distract	
14	Inattentive, easily distracted
34	Easily bored by a repetitive activity
43	Fails to finish things he/she started; short attention span
CPQ-M Excited	
25	Excitable, impulsive
31	Gets overexcited easily
CBCL Hyper	
8	Can't concentrate, can't pay attention for long
10	Can't sit still, restless, hyperactive
41	Impulsive or acts without thinking
45	Nervous, highstrung, or tense
46	Nervous movements or twitching

Note. Item numbers correspond to the instrument numbering system.

Appendix C (cont'd)

Table 16
Items Comprising the Property Damage Compound Scale

Item	Definition
CBRS-P No Respect for Property	
52	Plays with things not supposed to play with (lamp cords, water)
53	Gets into things of parents to play with (lamp cords, water)
54	Gets into things of parents or sisters or brothers that don't belong to him
16	Leaves brother's/sister's toys/room alone unless he has permission
CBCL Destroys	
20	Destroys own things
21	Destroys things belonging to family or other kids

Note. Item numbers correspond to the instrument numbering system.

Appendix C (cont'd)

Table 17
Items Comprising the Delinquency Compound Scale

	Item Definition
CPQ-M Lies	
12	Denies having done wrong
21	Bragging and boasting
28	Blames others for his/her mistakes
45	Tells stories which did not happen
CBCL Theft	
39	Hangs around with children who get into trouble
81	Steals at home
82	Steals outside the home
CBCL Supervise	
67	Runs away from home
72	Sets fires
101	Truancy, skips school
105	Uses alcohol or drugs
106	Vandalism

Note. Item numbers correspond to the instrument numbering system.

Appendix C (cont'd)

Table 18
Items Comprising the Cooperative Compound Scale

	Item Definition
CBRS-P Plays Well	
15	Shares toys with brothers or sisters or friends
14	Comforts (sympathizes with) brothers or sisters if they're upset
18	Plays and interacts well with friends/brothers/ sisters
CBRS-P Anger-Talks	
20d	When angry, mad, frustrated: talks out feelings, concerns, worries (after calming down)
26	Tells problem/concern to the person involved in conflict
20a	When angry, mad, frustrated: says why mad without hurting something/someone
24d	When being bothered by friends or brothers or sisters, does he: use words to work things out
25	Takes time, thinks about it before acting/reacting
24b	When being bothered by friends or brothers or sisters, does he: ask an adult for help
CBRS-P Polite	
05	Takes turns talking
04	Asks in nice, polite tone of voice
03	Answers in a positive tone of voice
02	Listens to you (minding)
01	Looks at you when you are talking
12	Says please and thank you
13	Waits to talk to you when you're on the phone
17	Plays by himself when you are busy

Note. Item numbers correspond to the instrument numbering system.

Appendix C (cont'd)

Table 19
Items Comprising the Compliant Compound Scale

	Item Definition
CBRS-P Compliant	
30	Picks up clothes and puts away
31	Cleans up own messes
37	Cleans up just for the sake of keeping order, not for money or other reward
33	Does chores (assigned tasks)
65	Leaves toys, clothes out
32	Washes hands and face
29	Is ready to go on time
36	Is in bed on time and stays in bed
34	Turns out lights
28	Brushes teeth by himself
35	Flushes toilet

Note. Item numbers correspond to the instrument numbering system.

Appendix C (cont'd)

Table 20
Items Comprising the Affectionate Compound Scale

	Item Definition
CBRS-P Affectionate	
07	Hugs and kisses
10	Shows affection spontaneously, without being forced and not for a reward
09	Says "I love (like) you" to you (parent) with sincerity
08	Sits on lap
06	Holds hands
11	Makes and gives pictures, things for you

Note. Item numbers correspond to the instrument numbering system.

Appendix C (cont'd)

Table 21
Items Comprising the Cries Compound Scale

	Item Definition
CPQ-M Cries	
19	Cries easily
33	Cries often and easily
40	Feelings are easily hurt

Note. Item numbers correspond to the instrument numbering system.

Appendix C (cont'd)

Table 22
Items Comprising the Shy Compound Scale

Item	Definition
CPQ-M Shy	
01	Afraid of new situations
05	Shy making friends
18	Afraid of people
CBCL Shy	
71	Self conscious or easily embarrassed
75	Shy or timid

Note. Item numbers correspond to the instrument numbering system.

Appendix C (cont'd)

Table 23
Items Comprising the Insecure Compound Scale

Item	Definition
CPQ-M Insecure	
36	Afraid of being alone
48	Clings to parents or other adults

Note. Item numbers correspond to the instrument numbering system.

Appendix D

Treatment Status of Families in the Intervention Study

Family Treatment Status Codes for Group 1, 2, & 3 Families
Rev 2: 11/12/90

P Num	Risk	Tx Status	Comments
001	2	1	completed tx
064	3	1	intact for duration T1.0-T1.2
065	3	1	intact for duration T1.0-T1.2
005	1	1	completed intervention
004	2	5	00 session parents refused/intact
066	3	1	intact for duration T1.0-T1.2
002	1	4	17 sessions parents started and withdrew remained intact
067	2	2	parents separated and moved from area
030	1	2	parents separated
009	2	2	02 sessions parents separated - program terminated. Parents were retrospectively judged not viable outset.
008	1	3	06 sessions parents refused then separated
068	3	5	refused to do post tests not eligible
006	1	1	completed intervention
012	1	1	completed intervention
033	2	5	01 sessions started then dropped (assumed intact)
069	3	1	separated at T1.0 and reunited - would have been offered
022	1	1	completed intervention
003	2	1	completed intervention
070	3	1	separated and reunited at T1.0 - would have been offered
032	1	1	completed intervention
071	3	1	intact for duration T1.0-T1.2
010	2	5	03 sessions started then dropped/intact
007	2	1	completed intervention
020	1	1	completed intervention
072	3	1	intact for duration T1.0-T1.2
015	1	1	completed intervention
014	1	1	completed intervention
011	2	1	completed intervention
073	3	1	separated and reunited at T1.0 - would have been offered
074	3	2	parents separated at T1.0 - would not have been offered

Appendix D (cont'd)

P Num	Risk	Tx Status		Comments
075	3	2		parents divorced at T1.0 - would not have been offered
076	2	7		withdrew from project
018	1	1		completed intervention
021	2	1		completed intervention
016	1	4	05	sessions started then dropped/intact
013	2	1		completed intervention
023	1	6	00	sessions family moved from service area - not offered
025	2	5	01	sessions parents refused/intact
077	3	5		refused to do post tests would not be eligible
078	3	6		moved from service area - would not be offered
079	3	5		intact for duration T1.0-T1.2 but failed to do posttests
017	2	4	07	sessions started then dropped intact
028	1	4	14	sessions + 2 with dad then dropped out intact
019	1	3	18	sessions started then separated
080	3	1		intact for duration T1.0-T1.2
027	2	5	01	sessions parents refused/then separated
024	2	1		completed intervention
026	2	5	02	sessions started then dropped/intact
081	1	7		withdrew from project
082	3	1		intact for duration T1.0-T1.2
083	3	1		separated at T1.0 and reunited - would have been offered
084	3	1		intact for duration T1.0-T1.2
085	1	2		parents separated - not offered
086	3	1		intact for duration T1.0-T1.2
029	2	5	00	sessions parents refused/intact
035	2	3		sessions parents separated - intervention terminated
087	2	7		withdrew from project
088	3	1		separated at T1.1 & T1.2 & reunited - would be eligible
089	1	7		withdrew from project
031	1	1		completed intervention
090	3	1		intact for duration T1.0-T1.2
034	2	1		completed intervention
036	2	1		completed intervention
037	2	5	00	sessions parents refused/intact

Appendix D (cont'd)

P Num	Risk	Tx Status		Comments
091	1	2		parents separated at T1.0 - not offered
092	3	1		intact for duration T1.0-T1.2
093	1	5		parents refused/intact
094	3	1		intact for duration T1.0-T1.2
047	2	5	00	sessions parents refused/intact
038	1	1		completed intervention
040	1	1		completed intervention
050	2	4	06	sessions started & dropped/intact
041	2	5	00	sessions started & dropped/intact
095	3	1		intact for duration T1.0-T1.2
096	3	2		separated and divorced by T1.2 - would not be eligible
043	1	1		completed intervention
049	2	1		completed intervention
053	1	1		completed intervention
039	2	5	02	sessions started & dropped/intact
048	1	1		completed intervention
044	1	5	02	sessions parents separated - started and dropped
042	2	2	00	sessions parents separated - intervention terminated parents were believed to not be actually together at offer
060	1	6		family moved from service area - not offered
051	2	2		parents separated - started
052	2	1		completed intervention
046	1	1		completed intervention
097	2	7		withdrew from project
045	1	6	01	sessions family moved from service area offered then moved/intact
098	3	1		intact for duration T1.0-T1.2
054	1	5	03	sessions started & dropped/intact
056	2	2		parents separated
099	3	1		intact for duration T1.0-T1.2
100	1	2		parents separated - intervention terminated
055	1	3	17	sessions started/parent separated
058	1	1		completed intervention
057	2	5	03	sessions started & dropped/intact
059	2	1		completed intervention
061	2	6	02	sessions started & moved out of area
101	3	1		intact for duration T1.0-T1.2
063	2	4	16	sessions started & dropped/intact

Appendix D (cont'd)

P Num	Risk	Tx Status	Comments
102	3	1	intact for duration T1.0-T1.2
062	2	4	11 sessions started & dropped/intact
103	3	1	intact for duration T1.0-T1.2
104	2	7	withdrew from project

Treatment Status Codes and Definitions

Code	Definition
1	Completed intervention or, for controls, remained intact from T1.0 to T1.2.
2	Separated before intervention was offered; therefore not eligible for intervention.
3	Separated during treatment or between T1.0 - T1.2; thus, parents failed to continue to meet project eligibility criteria.
4	Started treatment and completed 5 or more sessions but withdrew and remained intact.
5	Parents refused intervention offer, were unable to commit to intervention as shown by withdrawing in first 4 sessions, or, for controls, failed to complete T1.1 or T1.2 posttests.
6	Parents moved after intervention began.
7	Family failed to complete T1.0 Initial Assessment.

Notes. P number is Prevention Group ID number. Risk Status definition is 1 = Mother Only format; 2 = Both Parents format; and 3 = No Treatment controls.

Appendix E

Analysis of Differences at the T1.0 Assessment Among Families Having Different Disposition Statuses

Table 24
Comparison of Families Receiving the Intervention Who Either Did Not Complete the Initial (T1.0) Assessment, Refused the Intervention, Withdrew After Five Sessions (Partial TX), or Completed the Intervention (Full TX) on Demographic Variables (N=57)

					F Value of Effect		
Variable	Group	M	SD	n	Grp	Par	GxP
Family SES					.68	NA	NA
	A	27.08	10.13	6			
	B	34.82	21.13	7			
	C	26.54	10.60	15			
	D	29.00	12.34	28			
Parent Age:					2.24	10.42**	1.05
Mom							
	A	32.16	4.35	6			
	B	33.42	4.75	7			
	C	28.80	3.57	15			
	D	29.28	4.55	28			
	A	34.16	2.92	6			
	B	34.42	5.68	7			
	C	30.13	3.73	15			
	D	32.28	5.62	28			

Appendix E (cont'd)

Variable	Group	M	SD	n	F Value of Effect: Grp	Par	GxP
Parent Education:					0.59	0.21	1.24
Mom							
	A	11.33	1.63	6			
	B	12.71	1.49	7			
	C	12.20	1.82	15			
	D	12.82	1.65	28			
Dad							
	A	12.50	1.04	6			
	B	12.57	1.90	7			
	C	12.20	1.89	15			
	D	12.35	1.59	28			

Note: Group = A: Did Not Complete the Initial (T1.0) Assessment; B: Refused the Intervention; C: Withdrew After Five Sessions (Partial TX); D: Completed the Intervention (Full TX). The Grp effect is the between subjects effect; the Par effect is the within subjects effect for parent; and the GxP effect is the Grp by Par interaction effect.
*p < .05, **p < .01.

Appendix E (cont'd)

Table 25
Comparison of Families Receiving the Intervention Who Either Refused the Intervention, or Withdrew After Five Sessions (Partial TX), or Completed the Intervention (Full TX) on Child Behavior Composites, Demographic, and Parent Functioning Variables (N = 51)

Variable		Full TX	Refused	Partial TX	F Value of Effect Grp	Par	GxP
Negative Composite	M	12.32	11.58	10.68	1.60	NA	NA
	SD	2.26	2.25	2.55			
	n	29	15	7			
Prosocial Composite	M	8.10	8.57	9.19	1.00	NA	NA
	SD	1.73	2.00	2.41			
	n	29	15	7			
Affect-ionate	M	3.11	3.18	2.73	0.90	NA	NA
	SD	0.75	0.75	0.72			
	n	29	15	7			
Child Age	M	4.75	4.36	5.26	1.37	NA	NA
	SD	1.19	1.11	1.54			
	n	29	15	7			
Family SES	M	29.00	26.54	34.82	0.92	NA	NA
	SD	12.34	10.60	21.13			
	n	28	15	7			
Beck Depression							
Mom	M	4.86	3.66	3.14	0.87	3.46	0.25
	SD	3.76	3.71	2.19			
	n	29	15	7			
Dad	M	3.13	2.66	2.28			
	SD	2.83	3.41	3.30			
	n	29	15	7			

Appendix E (cont'd)

Total Antisocial Behavior							
Mom	M	14.89	15.71	8.71	0.51	14.98***	0.28
	SD	9.42	8.26	5.02			
	n	29	14	7			
Dad	M	24.27	23.57	22.00			
	SD	14.81	16.60	20.59			
	n	29	14	7			
Lifetime Alcohol Problems							
Mom	M	9.58	10.51	9.11	0.35	4.01*	1.92
	SD	1.76	2.29	1.30			
	n	28	15	7			
Dad	M	10.63	10.28	10.60			
	SD	1.78	2.25	1.63			
	n	28	15	7			
Parent's Age							
Mom	M	29.28	28.80	33.42	2.48	8.77**	1.48
	SD	4.55	3.57	4.75			
	n	28	15	7			
Dad	M	32.28	30.13	34.42			
	SD	5.62	3.73	5.68			
	n	28	15	7			
Parent's Education							
Mom	M	12.82	12.20	12.71	0.41	0.43	0.32
	SD	1.65	1.82	1.49			
	n	28	15	7			
Dad	M	12.35	12.20	12.57			
	SD	1.59	1.89	1.90			
	n	28	15	7			

Note. The Grp effect is the between subjects effect for Completers vs Refusers vs Partial Treatment; the Par effect is the within subjects effect for parent; and the GxP is the Grp by Par interaction effect.
*p < .05, **p < .01, ***p < .001.

Appendix E (cont'd)

Table 26
Comparison of Families in the Both Parents Format Who Either Refused the Intervention or Completed the Intervention on Child Behavior Composites, Demographic, and Parent Functioning Variables (N = 24)

Variable		Completers	Refusals	F value of Effect Grp	Par	GxP
Negative Composite	M	12.22	11.37	.78	NA	NA
	SD	2.44	2.27			
	n	12	12			
Prosocial Composite	M	7.63	8.75	1.52	NA	NA
	SD	2.27	2.17			
	n	12	12			
Affectionate	M	2.87	3.20	0.87	NA	NA
	SD	0.93	0.79			
	n	12	12			
Child Age	M	4.96	4.65	0.45	NA	NA
	SD	1.19	1.05			
	n	12	12			
Family SES	M	25.70	26.55	.02	NA	NA
	SD	15.03	11.50			
	n	11	12			
Beck Depression						
Mom	M	5.58	3.83	0.85	8.73**	1.05
	SD	3.96	3.53			
	n	12	12			
Dad	M	2.66	2.41			
	SD	2.42	2.67			
	n	12	12			

Appendix E (cont'd)

Total Antisocial Behavior						
Mom	M	17.33	14.58	0.15	1.99	0.12
	SD	8.72	8.28			
	n	12	12			
Dad	M	20.83	20.33			
	SD	17.30	14.95			
	n	12	12			
Lifetime Alcohol Problems						
Mom	M	9.38	10.39	0.29	0.83	1.32
	SD	1.76	2.32			
	n	11	12			
Dad	M	10.49	10.26			
	SD	1.91	2.46			
	n	11	12			
Parent's Age						
Mom	M	29.63	28.66	1.36	15.31***	2.91
	SD	5.35	3.62			
	n	11	12			
Dad	M	33.45	30.16			
	SD	5.57	3.92			
	n	11	12			
Parent's Education						
Mom	M	12.72	12.25	0.76	0.79	0.12
	SD	2.00	2.05			
	n	11	12			
Dad	M	12.54	11.83			
	SD	1.50	1.64			
	n	11	12			

Note. The Grp effect is the between subjects effect for Completers vs Refusers; the Par effect is the within subjects effect for parent; and the GxP is the Grp by Par interaction effect.
*p < .05, **p < .01, ***p < .001.

Appendix F

Missing Data Report for the Intervention Study

This table presents the missing data report for all intervention families by parent and postest for the four instruments used in this analysis. The order of the instruments is CBRS-P, CPQ-M, PDR-M, and CBCL. The families are sorted by final intervention status as defined in Appendix B and then by intervention group format (Mother Only = 1, Both Parents = 2, and Control = 3) within final status. A dot denotes that the entire instrument was not collected and a '1' denotes that the instrument was collected. The CBRS-Ps for several families were not collected at T1.0 because of an administrative oversight. The missing CBRS-P data for the prosocial scales was filled by substituting the group mean for the missing values. These cases are noted by a 'p'.

			T1.0		T1.1		T1.2		T1.3	
P - Num	Risk	Tx Status	Mom	Dad	Mom	Dad	Mom	Dad	Mom	Dad
005	1	1	1111	1111	1111	1111	1111	1111	1111	1111
006	1	1	1111	1111	1111	1111	1111	1111	1111	1111
012	1	1	p1.1	p1.1	1111	1111	11.1	11.1	1111	1111
022	1	1	p111	p111	1111	1111	1111	11.1	1111	1111
032	1	1	p111	p111	1111	1111	1111	1111	1111	1111
020	1	1	1111	1111	1111	1111	1111	1111	1111	1111
015	1	1	1111	1111	1111	1111	1111	1111	1111	1111
014	1	1	1111	1111	1111	1111	1111	1111	1111	1111
018	1	1	1111	1111	1111	1111	1111	1111	1111	1111
031	1	1	1111	1111	1111	1111	111.	111.	1111	1111
038	1	1	1111	1111	1111	1111	1111	1111	1111	1111
040	1	1	1111	1111	1111	1111	1111	1111	1111	1111
043	1	1	1111	1111	1111	1111	1111	1111	1111	1111
053	1	1	1111	1111	1111	1111	1111	1111	1111	1111
048	1	1	1111	1111	1111	1111	1111	1111	1111	1111
046	1	1	1111	1111	1111	1111	1111	1111	1111	1111
058	1	1	1111	1111	1111	1111	..1.	..1.	1111	1111
001	2	1	1111	1111	1111	1111	1111	1111	1111	1111
003	2	1	1111	1111	1111	1111	1111	1111	1111	1111
007	2	1	1111	1111	1111	1111	1111	1111	1111	1111
011	2	1	p111	1111	11.1	11.1	1111	1111	1111	1111
021	2	1	1111	1111	1111	1111	1111	1111	1111	1111
013	2	1	1111	1111	1111	1111	1111	1111	1111	....
024	2	1	1111	1111	1111	1111	1111	1111	11.1	11.1

Appendix F (cont'd)

P - Num	Risk	Tx Status	T1.0 Mom	T1.0 Dad	T1.1 Mom	T1.1 Dad	T1.2 Mom	T1.2 Dad	T1.3 Mom	T1.3 Dad
034	2	1	1111	1111	11.1	11.1	11.1	11.1	1111	1111
036	2	1	1111	1111	1111	1111	1111	1111	1111	1111
049	2	1	1111	1111	1111	1111	1111	1111	11.1	11.1
052	2	1	p111	1111	1111	1111	1111	1111	1111	1111
059	2	1	1111	1111	1111	1111	1111	1111	11.1	11.1
064	3	1	1111	1111	1111	1111	1111	1111	1111	1111
065	3	1	p111	p111	1111	1111	1111	1111	..1.	..1.
066	3	1	1111	1111	1111	1111	1111	1111	1111	1111
069	3	1	p1.1	p1.1	1111	1111	1111	1111	1111	1111
070	3	1	1111	1111	1111	1111	11.1	11.1	1111	....
071	3	1	p111	p111	1111	1111	1111	1111	1111	1111
072	3	1	p111	p111	1111	1111	1111	1111	1111	1111
073	3	1	1111	1111	1111	1111	1111	1111	1111	1111
080	3	1	1111	1111	1111	1111	1111	1111	1111	1111
082	3	1	1111	111.	1111	1111	1111	1111	1111	1111
083	3	1	1111	1111	1111	1111	1111	1111	1111	1111
084	3	1	1111	1111	1111	1111	1111	1111	1111	1111
086	3	1	1111	1111	1111	1111	1111	1111	1111	1111
088	3	1	1111	1111	1111	1111	1111	1111	1111	1111
090	3	1	1111	1111	1111	1111	1111	1111	1111	1111
092	3	1	1111	1111	1111	1111	1111	1111	1111	1111
094	3	1	1111	1111	1111	1111	1111	1111	1111	1111
095	3	1	1111	1111	1111	1111	1111	1111	1111	1111
098	3	1	1111	1111	1111	1111	1111	1111	1111	1111
099	3	1	1111	1111	1111	1111	1111	1111	....	....
101	3	1	1111	1111	1111	1111	1111	1111	1111	1111
102	3	1	1111	1111	1111	1111	1111	1111	....	....
103	3	1	1111	1111	1111	1111	1111	1111	....	....
085	1	2	1111	1111	1111	1111	1111	1111	1111	1111
091	1	2	1111	11.1	1111	1111	1111	11.1	1111	1111
100	1	2	1111	p111	1...	....	....	....	....	....
067	2	2	p1.1	p1.1	....	....	1111	1111	1111	....
009	2	2	1111	1111	1111	1111	1111	1111	1111	1111
042	2	2	1111	1111	1111	....	1111	....	1111	1111
051	2	2	1111	1111	11.1	1111	1111	1111	1111	1111
056	2	2	1111	1111	1111	....	1111	....	1111	....
074	3	2	1111	1111	1111	1111	1111	....	1111	11.1
075	3	2	1111	1111	1111	1111	1111	1111	1111	1111
096	3	2	1111	1111	1111	11.1	1111	....	11.1	....
008	1	3	1111	1111	1111	1111	1111	1111	1111	1111
019	1	3	1111	1111	1111	1111	1111	1111	1111	1111
055	1	3	1111	1111	1111	1111	1111	11.1	1111	1111
035	2	3	1111	1111	1111	1111	1111	....	1111	....

Appendix F (cont'd)

P - Num	Intervention Grp	Final status	T1.0 Mom	T1.0 Dad	T1.1 Mom	T1.1 Dad	T1.2 Mom	T1.2 Dad	T1.3 Mom	T1.3 Dad
002	1	4	1111	1111	11.1	11.1	1111	1111	1111	1111
016	1	4	1111	1111	1111	1111	1111	1111	1111	1111
028	1	4	1111	1111	11.1	11.1	1111	1111	1111	1111
017	2	4	1111	1111	....	1111	....	....	....	....
050	2	4	1111	1111	1111	1111	1111	1111	1111	1111
063	2	4	1111	1111	1111	1111	....	....	....	....
062	2	4	1111	1111	1111	1111	111.	1111	....	....
023	1	5	1111	1111	1111	1111	....	....	11.1	11.1
044	1	5	1111	1111	1111	1111	1111	1111	1111	1111
054	1	5	1111	1111	1111	1111	1111	1111	1111	1111
004	2	5	1111	1111	....	....	....	....	....	....
033	2	5	1111	1111	1111	1111	....	....	11.1	11.1
010	2	5	1111	1111	....	....	1111	1111	1111	1111
025	2	5	1111	1111	1111	11.1	1111	1111	1111	1111
027	2	5	1111	1111	1111	1111	1111	1111	1111	1111
026	2	5	1111	1111	1111	1111	1111	1111	1111	1111
029	2	5	1111	1111	1111	1111	111.	111.	1111	1111
037	2	5	1111	1111	1111	1111	11.1	11.1	1111	1111
047	2	5	1111	1111	11.1	11.1	1111	1111	....	....
041	2	5	1111	1111	1111	1111	1111	1111	1111	1111
039	2	5	1111	1111	1111	1111	1111	1111	1111	1111
057	2	5	1111	1111	1111	1111	1111	1111	11.1	11.1
079	3	5	1111	1111	1111	1111	....	....	....	....
060	1	6	1111	1111	1111	1111	1111	1111	11.1	11.1
045	1	6	1111	1111	1111	1111	1111	1111	11.1	1111
061	2	6	1111	1111	1..1	1..1	1111	.11.	....	....
078	3	6	1111	11.1	....	....	1111	1111	1111	..1.
030	1	7	...1	.1.1	....	....	....	....	....	....
081	1	7	....	....	....	....	....	....	....	....
089	1	7	....	....	....	....	....	....	....	....
093	1	7	1111	1111	....	....	....	....	....	....
076	2	7	.1.1	.1.1	....	....	....	....	....	....
087	2	7	....	....	....	....	....	....	....	....
097	2	7	....	....	....	....	....	....	....	....
104	2	7	.111	.111	....	....	....	....	....	....
068	3	7	.1.1	.1.1	....	....	....	....	....	....
077	3	7	11.1	11.1	....	....	....	....	....	....

Appendix G

Compound Scale Summary Statistics

Table 27A
Anger Arousal Compound Scale Definition and Reliability Data

Cluster Name	Number of Items	Alpha	Between Parent Correlation	Scale Reliability
CPQ-M Anger	2	.61	.32	.48
CBCL Anger	6	.78	.40	.57

Note. Reliability from Spearman-Brown prophecy formula.

Table 27B
Across Time Anger Arousal Compound Scale Summary Statistics

	Time Period			
Statistic	T1.0	T1.1	T1.2	T1.3
Alpha:				
Mother	.87	.83	.84	.81
Father	.83	.71	.75	.75
Mom-Dad *r*	.66	.50	.43	.40
Reliability	.80	.67	.60	.57
M	10.07	10.03	9.98	9.94
SD	0.85	0.75	0.81	0.74
N	94	89	86	82
T1.0	1.00	.71	.73	.63
T1.1	.71	1.00	.82	.75
T1.2	.73	.82	1.00	.81
T1.3	.63	.75	.81	1.00

Note. Reliability from Spearman-Brown prophecy formula.

Appendix G (cont'd)

Table 28A
Aggression Compound Scale Definition and Reliability Data

Cluster Name	Number of Items	Alpha	Between Parent Correlation	Scale Reliability
CBRS-P Aggression	6	.82	.47	.64
CPQ-M Aggression	7	.83	.44	.61
CBCL Aggression	5	.70	.48	.65
PDR-M Aggression	6	.36	.32	.48

Note. Reliability from Spearman-Brown prophecy formula.

Table 28B
Across Time Aggression Compound Scale Summary Statistics

	Time Period			
Statistic	T1.0	T1.1	T1.2	T1.3
Alpha:				
Mother	.82	.80	.85	.85
Father	.79	.85	.87	.86
Mom-Dad r	.75	.54	.68	.53
Reliability	.86	.70	.81	.69
M	10.02	10.01	10.04	9.94
SD	0.73	0.69	0.76	0.73
N	94	90	87	83
T1.0	1.00	.75	.75	.69
T1.1	.75	1.00	.74	.81
T1.2	.75	.74	1.00	.81
T1.3	.69	.81	.81	1.00

Note. Reliability from Spearman-Brown prophecy formula.

Appendix G (cont'd)

Table 29A
Defiant Compound Scale Definition and Reliability Data

Cluster Name	Number of Items	Alpha	Between Parent Correlation	Scale Reliability
CBRS-P Rude	6	.76	.30	.46
CPQ-M Defy	2	.68	.32	.48
CBCL Disobey	2	.51	.31	.47
CBCL Rude	7	.72	.39	.56

Note. Reliability from Spearman-Brown prophecy formula.

Table 29B
Across Time Defiant Compound Scale Summary Statistics

	Time Period			
Statistic	T1.0	T1.1	T1.2	T1.3
Alpha:				
Mother	.79	.81	.81	.83
Father	.76	.78	.79	.83
Mom-Dad *r*	.70	.59	.75	.53
Reliability	.82	.74	.86	.69
M	10.02	10.00	10.03	9.94
SD	0.68	0.65	0.68	0.73
N	94	90	86	82
T1.0	1.00	.67	.72	.62
T1.1	.67	1.00	.77	.73
T1.2	.72	.77	1.00	.80
T1.3	.62	.73	.80	1.00

Note. Reliability from Spearman-Brown prophecy formula.

Appendix G (cont'd)

Table 30A
Hyperactive Compound Scale Definition and Reliability Data

Cluster Name	Number of Items	Alpha	Between Parent Correlation	Scale Reliability
CBRS-P Hyper	3	.58	.39	.56
CPQ-M Nervous	3	.80	.46	.63
CPQ-M Distract	3	.76	.36	.53
CPQ-M Excited	2	.70	.30	.46
CBCL Hyper	5	.70	.42	.59

Note. Reliability from Spearman-Brown prophecy formula.

Table 30B
Across Time Hyperactive Compound Scale Summary Statistics

	Time Period			
Statistic	T1.0	T1.1	T1.2	T1.3
Alpha:				
Mother	.90	.91	.91	.91
Father	.88	.89	.87	.87
Mom-Dad *r*	.65	.63	.65	.54
Reliability	.79	.77	.79	.70
M	10.07	9.93	10.02	9.96
SD	0.75	0.73	0.78	0.70
N	94	90	86	82
T1.0	1.00	.84	.79	.77
T1.1	.84	1.00	.84	.82
T1.2	.79	.84	1.00	.85
T1.3	.77	.82	.85	1.00

Note. Reliability from Spearman-Brown prophecy formula.

Appendix G (cont'd)

Table 31A
Property Damage Compound Scale Definition and Reliability Data

Cluster Name	Number of Items	Alpha	Between Parent Correlation	Scale Reliability
CBRS-P No Respect for Property	4	.82	.46	.63
CBCL Destroys	2	.74	.41	.58

Note. Reliability from Spearman-Brown prophecy formula.

Table 31B
Across Time Property Damage Compound Scale Summary Statistics

	Time Period			
Statistic	T1.0	T1.1	T1.2	T1.3
Alpha:				
Mother	.51	.48	.55	.66
Father	.64	.68	.68	.64
Mom-Dad *r*	.86	.85	.88	.68
Reliability	.92	.92	.94	.81
M	10.29	10.00	9.90	9.80
SD	0.82	0.69	0.71	0.70
N	94	90	86	82
T1.0	1.00	.71	.78	.75
T1.1	.71	1.00	.83	.78
T1.2	.78	.83	1.00	.79
T1.3	.75	.78	.79	1.00

Note. Reliability from Spearman-Brown prophecy formula.

Appendix G (cont'd)

Table 32A
Delinquent Compound Scale Definition and Reliability Data

Cluster Name	Number of Items	Alpha	Between Parent Correlation	Scale Reliability
CPQ-M Lies	4	.66	.35	.52
CBCL Theft	3	.57	.35	.52
CBCL Supervise	6	.72	.07	.13

Note. Reliability from Spearman-Brown prophecy formula.

Table 32B
Across Time Delinquent Compound Scale Summary Statistics

	Time Period			
Statistic	T1.0	T1.1	T1.2	T1.3
Alpha:				
Mother	.69	.56	.70	.70
Father	.65	.47	.70	.67
Mom-Dad *r*	.41	.58	.79	.71
Reliability	.58	.73	.88	.83
M	10.00	9.97	10.02	10.03
SD	0.72	0.41	0.57	0.58
N	94	89	86	82
T1.0	1.00	.35	.41	.30
T1.1	.35	1.00	.61	.56
T1.2	.41	.61	1.00	.68
T1.3	.30	.56	.68	1.00

Note. Reliability from Spearman-Brown prophecy formula.

Appendix G (cont'd)

Table 33A
Cooperative Compound Scale Definition and Reliability Data

Cluster Name	Number of Items	Alpha	Between Parent Correlation	Scale Reliability
CBRS-P Plays Well	3	.65	.31	.47
CBRS-P Anger-Talks	6	.76	.27	.43
CBRS-P Polite	8	.78	.40	.57

Note. Reliability from Spearman-Brown prophecy formula.

Table 33B
Across Time Cooperative Compound Scale Summary Statistics

	Time Period			
Statistic	T1.0	T1.1	T1.2	T1.3
Alpha:				
Mother	.76	.82	.82	.84
Father	.72	.83	.73	.78
Mom-Dad *r*	.51	.43	.42	.37
Reliability	.68	.60	.59	.54
M	9.83	10.01	10.10	10.05
SD	0.64	0.74	0.65	0.69
N	86	90	86	82
T1.0	1.00	.62	.42	.43
T1.1	.62	1.00	.72	.62
T1.2	.42	.72	1.00	.71
T1.3	.43	.62	.71	1.00

Note. Reliability from Spearman-Brown prophecy formula.

Appendix G (cont'd)

Table 34A
Compliant Scale Definition and Reliability Data

Cluster Name	Number of Items	Alpha	Between Parent Correlation	Scale Reliability
CBRS-P Compliant	11	.86	.52	.68

Note. Reliability from Spearman-Brown prophecy formula.

Table 34B
Across Time Compliance Scale Summary Statistics

	Time Period			
Statistic	T1.0	T1.1	T1.2	T1.3
Alpha:				
Mother	na	na	na	na
Father	na	na	na	na
Mom-Dad r	.46	.60	.53	.42
Reliability	.63	.75	.69	.59
M	9.75	10.01	10.12	10.11
SD	0.88	0.85	0.85	0.81
N	86	90	86	82
T1.0	1.00	.49	.45	.51
T1.1	.49	1.00	.74	.73
T1.2	.45	.74	1.00	.80
T1.3	.51	.73	.80	1.00

Note. Reliability from Spearman-Brown prophecy formula.

Appendix G (cont'd)

Table 35A
Affection Scale Definition and Reliability Data

Cluster Name	Number of Items	Alpha	Between Parent Correlation	Scale Reliability
CBRS-P Affection	6	.84	.39	.56

Note. Reliability from Spearman-Brown prophecy formula.

Table 35B
Across Time Affection Scale Summary Statistics

	Time Period			
Statistic	T1.0	T1.1	T1.2	T1.3
Alpha:				
Mother	na	na	na	na
Father	na	na	na	na
Mom-Dad *r*	.43	.46	.17	.53
Reliability	.60	.63	.29	.69
M	10.10	10.08	9.98	9.83
SD	0.74	0.82	0.75	0.94
N	86	90	86	82
T1.0	1.00	.68	.61	.50
T1.1	.68	1.00	.74	.61
T1.2	.61	.74	1.00	.66
T1.3	.50	.61	.66	1.00

Note. Reliability from Spearman-Brown prophecy formula.

Appendix G (cont'd)

Table 36A
Shy Compound Scale Definition and Reliability Data

Cluster Name	Number of Items	Alpha	Between Parent Correlation	Scale Reliability
CPQ-M Shy	3	.65	.33	.50
CBCL Shy	2	.50	.30	.46

Note. Reliability from Spearman-Brown prophecy formula.

Table 36B
Across Time Shy Compound Scale Summary Statistics

	Time Period			
Statistic	T1.0	T1.1	T1.2	T1.3
Alpha:				
Mother	.62	.64	.68	.61
Father	.67	.55	.51	.57
Mom-Dad *r*	.63	.73	.71	.39
Reliability	.77	.84	.83	.56
M	10.12	9.99	10.00	9.88
SD	0.71	0.77	0.76	0.68
N	94	89	86	82
T1.0	1.00	.59	.50	.50
T1.1	.59	1.00	.71	.66
T1.2	.50	.71	1.00	.72
T1.3	.50	.66	.72	1.00

Note. Reliability from Spearman-Brown prophecy formula.

Appendix G (cont'd)

Table 37A
Cries Scale Definition and Reliability Data

Cluster Name	Number of Items	Alpha	Between Parent Correlation	Scale Reliability
CPQ-M Cries	3	.78	.44	.61

Note. Reliability from Spearman-Brown prophecy formula.

Table 37B
Across Time Cries Scale Summary Statistics

Statistic	Time Period T1.0	T1.1	T1.2	T1.3
Alpha:				
Mother	NA	NA	NA	NA
Father	NA	NA	NA	NA
Mom-Dad *r*	.49	.25	.21	.22
Reliability	.66	.40	.35	.36
M	10.02	10.05	10.05	9.88
SD	0.95	0.79	0.79	0.69
N	94	88	86	82
T1.0	1.00	.68	.65	.50
T1.1	.68	1.00	.70	.70
T1.2	.65	.70	1.00	.59
T1.3	.50	.70	.59	1.00

Note. Reliability from Spearman-Brown prophecy formula.

Appendix G (cont'd)

Table 38A
Insecure Scale Definition and Reliability Data

Cluster Name	Number of Items	Alpha	Between Parent Correlation	Scale Reliability
CPQ-M Insecure	2	.46	.31	.47

Note. Reliability from Spearman-Brown prophecy formula.

Table 38B
Across Time Insecure Scale Summary Statistics

	Time Period			
Statistic	T1.0	T1.1	T1.2	T1.3
Alpha:				
Mother	NA	NA	NA	NA
Father	NA	NA	NA	NA
Mom-Dad *r*	.41	.23	.24	.19
Reliability	.58	.37	.39	.32
M	10.19	9.96	9.88	9.89
SD	0.90	0.74	0.76	0.75
N	94	88	86	82
T1.0	1.00	.48	.51	.56
T1.1	.48	1.00	.53	.52
T1.2	.51	.53	1.00	.51
T1.3	.56	.52	.51	1.00

Note. Reliability from Spearman-Brown prophecy formula.

Appendix H

Correlations Between Compound Scales Computed Using All Intervention Study Families at T1.0 (Decimals Omitted)

Composite Scale	1	2	3	4	5	6
1 Anger	100	79**	63**	76**	57**	65**
2 Aggression	79**	100	58**	75**	65**	70**
3 Hyper	63**	58**	100	67**	59**	54**
4 Defiant	76**	75**	67**	100	54**	63**
5 Property	57**	65**	59**	54**	100	44**
6 Delinquent	65**	70**	54**	63**	44**	100
7 Cooperative	-42**	-45**	-30*	-47**	-37**	-41**
8 Obeys	-10	-24	-10	-18	-26*	-14
9 Affectionate	-15	-18	-22	-13	-25	-26*
10 Shy	18	08	18	17	14	10
11 Cries	58**	51**	52**	63**	26*	42**
12 Insecure	35**	32*	30*	45**	20	29*

	7	8	9	10	11	12
1 Anger	-42**	-10	-15	18	58**	35**
2 Aggression	-45**	-24	-18	08	51**	32*
3 Hyper	-30*	-10	-22	18	52**	30*
4 Defiant	-47**	-18	-13	17	63**	45**
5 Property	-37**	-26*	-25	14	26*	20
6 Delinquent	-41**	-14	-26*	10	42**	29*
7 Cooperative	100	44**	43**	-11	-39**	-27*
8 Obeys	44**	100	23	01	-05	-12
9 Affectionate	43**	23	100	-10	-10	-07
10 Shy	-11	01	-10	100	37**	33**
11 Cries	-39**	-05	-10	37**	100	41**
12 Insecure	-27*	-12	-07	33**	41**	100

Notes. N is not less 100 nor more than 104 for any correlation. *p < .01; **p < .001, two tailed.

Appendix I

Compound Scale Statistics for the Analysis of Hypothesis B

Table 39
Across Time Means and Standard Deviations for the Mother Only and Both Parents Formats on the Compound Scales

Construct		T1.0	T1.1	T1.2	T1.3
Anger Arousal					
Both Parents	M	3.11	2.95	2.75	2.91
	SD	0.76	0.74	0.51	0.76
	n	17	17	16	17
Mother Only	M	3.05	2.99	2.83	2.83
	SD	0.79	0.67	0.82	0.70
	n	12	12	12	12
Total	M	3.09	2.97	2.78	2.88
	SD	0.76	0.70	0.65	0.72
	n	29	29	28	29
Aggression					
Both Parents	M	3.10	3.05	3.04	2.95
	SD	0.59	0.70	0.75	0.80
	n	17	17	16	17
Mother Only	M	2.82	2.77	2.82	2.77
	SD	0.50	0.51	0.73	0.84
	n	12	12	12	12
Total	M	2.98	2.94	2.95	2.88
	SD	0.57	0.63	0.73	0.81
	n	29	29	28	29
Hyper					
Both Parents	M	3.05	2.92	2.98	3.00
	SD	0.53	0.66	0.64	0.60
	n	17	17	16	17
Mother Only	M	3.18	3.05	2.79	2.95
	SD	0.71	0.80	0.68	0.73
	n	12	12	12	12
Total	M	3.10	2.97	2.90	2.98
	SD	0.60	0.71	0.65	0.64
	n	29	29	28	29

Appendix I (cont'd)

Construct		T1.0	T1.1	T1.2	T1.3
Defiant					
Both Parents	M	3.11	2.91	2.99	2.95
	SD	0.60	0.66	0.62	0.65
	n	17	17	16	17
Mother Only	M	3.15	3.22	2.93	2.91
	SD	0.75	0.65	0.87	0.92
	n	12	12	12	12
Total	M	3.13	3.03	2.97	2.93
	SD	0.65	0.66	0.72	0.76
	n	29	29	28	29
Property Damage					
Both Parents	M	3.33	2.96	2.91	2.79
	SD	0.61	0.63	0.59	0.58
	n	17	17	16	17
Mother Only	M	3.29	3.10	2.80	2.72
	SD	0.63	0.72	0.70	0.62
	n	12	12	12	12
Total	M	3.32	3.02	2.86	2.76
	SD	0.60	0.66	0.63	0.58
	n	29	29	28	29
Delinquent					
Both Parents	M	2.87	2.93	2.91	2.97
	SD	0.61	0.62	0.59	0.58
	n	17	17	16	17
Mother Only	M	2.87	2.96	3.02	3.31
	SD	0.46	0.37	0.77	1.15
	n	12	12	12	12
Total	M	2.87	2.94	2.96	3.11
	SD	0.54	0.52	0.67	0.86
	n	29	29	28	29

Appendix I (cont'd)

Construct		T1.0	T1.1	T1.2	T1.3
Cooperative					
Both Parents	M	2.81	3.12	3.14	3.10
	SD	0.44	0.53	0.57	0.61
	n	17	17	16	17
Mother Only	M	2.54	2.98	3.21	3.20
	SD	0.56	0.83	0.81	0.71
	n	12	12	12	12
Total	M	2.69	3.06	3.17	3.14
	SD	0.50	0.66	0.67	0.65
	n	29	29	28	29
Compliant					
Both Parents	M	2.70	3.21	3.02	3.14
	SD	0.69	0.74	0.68	0.50
	n	17	17	16	17
Mother Only	M	2.48	3.25	3.30	3.03
	SD	1.04	0.84	0.88	0.82
	n	12	12	12	12
Total	M	2.61	3.23	3.14	3.09
	SD	0.84	0.77	0.77	0.64
	n	29	29	28	29
Affectionate					
Both Parents	M	3.27	3.27	3.08	3.02
	SD	0.56	0.67	0.67	0.66
	n	17	17	16	17
Mother Only	M	2.87	2.76	2.96	2.71
	SD	0.93	1.19	1.12	0.88
	n	12	12	12	12
Total	M	3.11	3.06	3.03	2.89
	SD	0.75	0.94	0.88	0.76
	n	29	29	28	29

Appendix I (cont'd)

Construct		T1.0	T1.1	T1.2	T1.3
Shy					
Both Parents	M	2.84	2.73	2.51	2.52
	SD	0.57	0.62	0.50	0.47
	n	17	17	16	17
Mother Only	M	3.26	2.96	3.03	3.07
	SD	0.61	0.88	0.85	0.70
	n	12	12	12	12
Total	M	3.01	2.83	2.73	2.75
	SD	0.61	0.74	0.70	0.63
	n	29	29	28	29
Cries					
Both Parents	M	3.00	3.00	2.99	2.73
	SD	0.99	0.70	0.67	0.82
	n	17	17	16	17
Mother Only	M	3.00	3.26	3.11	3.04
	SD	0.79	0.77	0.86	0.80
	n	12	12	12	12
Total	M	3.00	3.11	3.04	2.86
	SD	0.90	0.72	0.74	0.81
	n	29	29	28	29
Insecure					
Both Parents	M	3.18	2.83	2.66	2.73
	SD	0.99	0.69	0.69	0.58
	n	17	17	16	17
Mother Only	M	3.47	3.30	3.01	3.11
	SD	1.19	0.68	0.63	0.73
	n	12	12	12	12
Total	M	3.30	3.02	2.81	2.89
	SD	1.06	0.72	0.67	0.66
	n	29	29	28	29

Appendix I (cont'd)

Construct		T1.0	T1.1	T1.2	T1.3
Plays Well					
Both Parents	M	3.02	3.04	3.05	3.07
	SD	0.65	0.63	0.79	0.99
	n	17	17	16	17
Mother Only	M	2.77	3.24	3.24	3.23
	SD	0.94	0.74	0.69	0.63
	n	12	12	12	12
Total	M	2.91	3.12	3.13	3.14
	SD	0.78	0.67	0.74	0.85
	n	29	29	28	29
Polite					
Both Parents	M	2.71	3.15	3.18	3.08
	SD	0.56	0.64	0.65	0.68
	n	17	17	16	17
Mother Only	M	2.37	2.81	3.29	3.14
	SD	0.88	1.14	1.16	1.00
	n	12	12	12	12
Total	M	2.57	3.01	3.23	3.10
	SD	0.72	0.88	0.88	0.81
	n	29	29	28	29
Anger-Talks					
Both Parents	M	2.69	3.17	3.19	3.16
	SD	0.60	0.69	0.73	0.50
	n	17	17	16	17
Mother Only	M	2.47	2.89	3.10	3.21
	SD	0.35	0.88	0.86	0.85
	n	12	12	12	12
Total	M	2.60	3.05	3.15	3.18
	SD	0.51	0.77	0.77	0.65
	n	29	29	28	29

Appendix I (cont'd)

Table 40
Point Biserial Intervention Format Effect Correlations for Compound Scales

Compound Scale		Time Period T1.1-T1.0	T1.2-T1.1	T1.3-T1.2	T1.2-T1.0	T1.3-T1.0
Anger Arousal	r	.10	.07	-.25+	.19	-.02
	n	29	28	28	28	29
Aggression	r	-.00	.11	-.00	.11	.10
	n	29	28	28	28	29
Defiant	r	.27+	-.32*	-.05	-.07	-.07
	n	29	28	28	28	29
Hyper	r	-.00	-.36*	.14	-.35*	-.23
	n	29	28	28	28	29
Property Damage	r	.20	-.25+	.04	-.08	-.03
	n	29	28	28	28	29
Delinquent	r	.04	.10	.16	.13	.21
	n	29	28	28	28	29
Cooperative	r	.12	.21	.07	.25+	.32*
	n	29	28	28	28	29
Plays Well	r	.35*	-.02	.00	.29+	.26+
	n	29	28	28	28	29
Anger-Talks	r	-.05	.16	.12	.08	.18
	n	29	28	28	28	29
Polite	r	.00	.28+	.02	.27+	.28+
	n	29	28	28	28	29
Compliant	r	.15	.21	-.32*	.28+	.07
	n	29	28	28	28	29
Affectionate	r	-.10	.32*	-.16	.21	.07
	n	29	28	28	28	29

Appendix I (cont'd)

Compound Scale		Time Period T1.1-T1.0	T1.2-T1.1	T1.3-T1.2	T1.2-T1.0	T1.3-T1.0
Shy	r	-.18	.22	.11	.07	.14
	n	29	28	28	28	29
Cries	r	.23	-.12	.13	.14	.22
	n	29	28	28	28	29
Insecure	r	.09	-.09	.06	.05	.05
	n	29	28	28	28	29

Note. A positive correlation means that the Both Parents format showed more change in the expeced direction than did the Mother Only format.
+ p < .10; * p < .05; ** p < .01; one tailed.

LIST OF REFERENCES

References

Abel, E. L. & Sokol, R. J. (1989). Alcohol consumption during pregnancy: The dangers of moderate drinking. In H. W. Goedde, & D. P. Agarwal (Eds.), Alcoholism: Biomedical and genetic aspects (pp. 228-237). Pergamon Press: Elmsford, NY.

Achenbach, T. M. (1978). The Child Behavior Profile: I. Boys aged 6-11. Journal of Consulting and Clinical Psychology, 46, 478-488.

Achenbach, T. M. & Edelbrock, C. (1983). Manual for the Child Behavior Checklist. Burlington, VT: University of Vermont.

Achenbach, T. M. & Edelbrock C. S. (1981a). The classification of child psychopathology: A review and analysis of empirical efforts. Psychological Bulletin, 85, 1275-1301.

Achenbach, T. M. & Edelbrock C. S. (1981b). Behavioral problems and competencies reported by parents of normal and disturbed children aged four through sixteen. Monographs of the Society for Research in Child Development, 46, Serial No. 188.

Adesso, V. J. & Lipson, J. W. (1981). Group training mothers as therapists for their children. Behavior Therapy, 12, 625-633.

Allison, P. D. & Furstenberg, F. F., Jr. (1989). How marital dissolution affects children: Variations by age and sex. Developmental Psychology, 25, 540-549.

Allport, G. (1937). Personality: A psychosocial interpretation. New York: Holt.

Anderson, L. M. (1969). Personality characteristics of parents of neurotic, aggressive, and normal preadolescent boys. Journal of Consulting and Clinical Psychology, 33, 575-581.

Andrews, S. R., Blumenthal, J. B., Johnson, D. L., Kahn, A. J., Ferguson, C. J., Lasater, T. M., Malone, P. E. & Wallace, D. B. (1982). The skills of mothering: A study of Parent Child Development Centers. Monographs of the Society of for Research in Child Development, 47(6, Serial No. 198).

Atkenson, B. M. & Forehand, R. (1978). Parent behavioral training for problem children: An examination of studies using multiple outcome measures. Journal of Abnormal Child Psychology, 6, 449-460.

Baekeland, F. & Laundell, L. (1975). Dropping out of treatment: A critical review. Psychological Bulletin, 82, 738-783.

Barron, A. P. & Earls, F. (1984). The relation of temperament and social factors to behavior problems in three-year-old children. Journal of Child Psychology and Psychiatry, 25, 23-33.

Berkowitz, B. P. & Graziano, A. M. (1972). Training parents a behavior therapists: A review. Behavior Research and Therapy, 10, 297-317.

Bernal, M. E., Klinnert, M. D. & Schultz, L. A. (1980). Outcome evaluation of behavioral parent training and client centered parent counseling for children with conduct problems. Journal of Applied Behavior Analysis, 13, 677-691.

Boyd, J. H., Burke, J. D., Jr., Gruenberg, E., Holzer, C. E., III, Rae, D. S., George, L. K., Karno, M., Stoltzman, R.,McEvoy, L. & Hestadt, G. (1984). Exclusion criteria of DSM-III: A study of co-occurence of heirarchy-free syndromes. Archives of General Psychiatry, 41, 983-989.

Brody, G. H. & Forehand, R. (1986). Maternal perceptions of child maladjustment as a function of the combined influence of child behavior and maternal depression. Journal of Consulting and Clinical Psychology, 54, 237-240.

Brown, F. (1966). Childhood bereavement and subsequent psychiatric disorder. British Jounal of Psychiatry, 112, 1035-1041.

Campos, J. J., Barrett, K. C., Lamb, M. E., Goldsmith, H. H. & Stenberg, C. (1983). Socioemotional development. In P. H.Mussen (Ed.). Handbook of Child Pschology: Vol. 2. Infancy and Developmental Psychobiology. New York: Wiley.

Chamberlain, P. (1980). A parent daily report measure. Unpublished doctoral dissertation. University of Oregon, Eugene, OR.

Chamberlain, P., Patterson, G. R., Reid, J. B., Kavanagh, K. & Forgatch, M. S. (1984). Observation of client resistance. Behvior Therapy, 15, 144-155.

Christensen, A., Johnson, S. M., Phillips, S. & Glasgow, R. E. (1980). Cost effectiveness in Behavior Family Therapy. Behavior Therapy, 11, 208-226.

Cicirelli, V. G. (1976). Mother-child and sibling-sibling interactions on a problem solving task. Child Development, 47, 588-596.

Cloninger, C. R. & Gottesman, I. I. (1987). Genetic and environmental factors in antisocial behavior disorders. In M. E. Wolfgang, T. E. Moffitt & S. A. Stack (Eds.), The causes of crime (pp. 91-109). Cambridge: Cambridge University Press.

Cohen, J. (1988). Statistical power analysis for the behavioral sciences (2nd ed.). Hillsdale, NJ: Lawrence Erlbaum.

Cohen, R. S. & Weissman, S. H. (1984). The parenting alliance. In R. S. Cohen, B. J. Cohler & S. H. Weissman (Eds.), Parenthood: A psychodynamic perspective (pp. 33-49). New York: Guilford.

Connors, R. C. (1966). The treatment of disruptive behavior problems by employment of a partial-milieu consistency program. Unpublished doctoral dissertation. University of Oregon, Eugene, OR.

Connors, C. K. (1973). Rating scales for use in drug studies with children. Psychopharmacology Bulletin (Special Issue: Pharmacotherapy of Children). 24-29.

Cook, T. D. & Campbell, D. T. (1979). Quasi-experimentation. Chicago: Rand-McNally.

Cummings, E. M., Iannotti, R. J. & Zahn-Waxler, C. (1985). Influence of conflict between adults on the emotions and aggression of young children. Developmental Psychology, 21, 495-507.

Dinwiddie, S. H. & Cloninger, C. R. (1989). Famiy and adoption studies of alcoholism. In H. W. Goedde, & D. P. Agarwal (Eds.), Alcoholism: Biomedical and genetic aspects (pp. 259-276). Pergamon Press: Elmsford, NY.

Dodge, K. A. (1980). Social cognition and children's aggressive behavior. Child Development, 51, 162-170.

Dodge, K. A. & Frame, C. L. (1982). Social cognitive biases and deficits in aggressive boys. Child Development, 53, 620-635.

Dodge, K. A., Murphy, R. R. & Buschbaum, K. (1984). The assessment of intention-cue detection skills in children: Implications for developmental psychopathology. Child Development, 55, 163-173.

Dodge, K. A. & Somberg, D. R. (1987). Hostile attributional biases among aggressive boys are exacerbated under conditions of threats to self. Child Development, 58, 213-224.

Dohrenwend, B. S. & Dohrenwend, B. P. (Eds.), (1974). Stressful life events: Their nature and effects. New York: John Wiley.

Dumas, J. E. & Wahler, R. G. (1983). Predictors of treatment outcome in parent training: Mother insularity and socioeconomic disadvantage. Behavioral Assessment, 5, 301-313.

Dumas, J. E. (1984). Interactional correlates of treatment outcome in behavioral parent training. Journal of Consulting and Clinical Psychology, 52, 946-954.

Dumas, J. E. (1986). Indirect influences of maternal social contacts on mother-child interactions: A setting events analysis. Journal of Abnormal Child Psychology, 14, 205-216.

Earls, F. (1981). Temperament characteristics and behavior problems in three-year-old children. Journal of Nervous and Mental Diseases, 169, 367-373.

Earls, F. & Jung, K. G. (1988). Temperament and home environment characteristics as causal factors in the early development of childhood psychopathlogy. In S. Chess, A. Thomas & M. E. Hertzig (Eds.), Annual Review of Progress in Child Psychiatry and Child Development. New York: Bruner-Mazel.

Elder, G. H., Jr., Caspi, A. & Downey, G. (in press). Problem behavior and family relationships: Life course and intergenerational themes. In A. Sorensen & L. Sherrod (Eds.), Human development: Multidisciplinary perspectives. Hillsdale, NJ: Erlbaum.

Emery, R. E. (1982). Interparental conflict and the children of discord and divorce. Psychological Bulletin, 92, 310-330.

Eron, L. D., Huesmann, L. R. & Zelli, A. (1988, August). The role of parental variables in the learning of aggression. Paper presented at the meeting of the American Psychological Association. Atlanta, GA.

Eyberg, S. M. & Johnson, S. M. (1974). Multiple assessment of behavior modification with families: Effects of contingency contracting and order of treated problems. Journal of Consulting and Clinical Psychology, 42, 594-606.

Fairweather, G. W. & Tornatzky, L. G. (1977). Experimental methods for social policy research. New York: Pergamon.

Feighner, J. P., Robins, E., Guze, S., Woodruff, R. A., Winokur, G. & Munoz, R. (1972). Diagnostic criterion for use in psychiatric research. Archives of General Psychiatry, 26, 57-63.

Firestone, P., Kelly, M. J. & File, S. (1980). Are fathers really necessary in parent training groups? Journal of Clinical Child Psychology, 9, 44-47.

Firestone, P. & Witt, J. E. (1982). Characteristics of families prematurely discontinuing a behavioral parent training program. Journal of Pediatric Psychology, 7, 209-222.

Fleischman, M. J. (1981). A replication of Patterson's "Intervention for boys with conduct problems". Journal of Consulting and Clinical Psychology, 49, 342-351.

Fleischman, M. J. & Szykula, S. A. (1981). A community setting replication of a social learning treatment for aggressive children. Behavior Therapy, 12, 115-122.

Forehand, R., Griest, D. L. & Wells, K. C. (1979). Parent behavioral training: An analysis of the relationship between multiple outcome measures. Journal of Abnormal Child Psychology, 7, 229-242.

Forehand, R. & King, H. E. (1977) Noncompliant Children: Effects of parent training on behavior and attitude change. Behavior Modification, 1, 93-108.

Forehand, R., Sturgis, E. T., McMahaon, R. J., Aguar, D., Green, K., Wells, K. C. & Breiner, J. (1979). Parent behavioral training to modify child noncompliance: Treatment generalization across time and from home to school. Behavior Modification, 3, 3-25.

Forehand, R., Wells, K. C. & Griest, D. L. (1980). An examination of the social validity of a parent training program. Behavior Therapy, 11, 488-502.

Forehand, R. & Atkeson, B. M. (1977). Generality of treatment effects with parents as therapists: A review of assessment and implementation procedures. Behavior Therapy, 8, 575-593.

Forehand, R., Middlebrook, J., Rogers, T. & Stiffle, M. (1983). Dropping out of parent training. Behavior Research and Therapy, 21, 663-668.

Garber, H. L. (1988). The Milwaukee Project: Preventing mental retardation in children at risk. Washington, D.C.: American Association on Mental Retardation.

Gardener, F. E. M. (1987). Positive interaction between mothers and conduct-problem children: Is there training for harmony as well as fighting. Journal of Abnormal Child Psychology, 15, 283-293.

Glogower, F. & Sloop, E. W. (1976). Two strategies of group training of parents as effective behavior modifiers. Behavior Therapy, 7, 177-184.

Gouze, K. R. (1987). Attention and social problem solving as correlates of aggression in preschool males. Journal of Abnormal Child Psychology, 15, 181-197.

Goyette, C. H., Connors, C. K., & Ulrich, R. F. (1978). Normative data on Revised Conners Parent and Teacher Rating Scales. Journal of Abnormal Child Psychology, 6, 221-236.

Gregory, I. (1965). Anteroespective data following childhood loss of a parent. Archives of General Psychiatry, 13, 99-110.

Griest, D. L., Forehand, R., Rogers, T., Breiner, J., Furey, W. & Williams, C. A. (1982). Effects of parent enhancement therapy on the treatment outcome and generalization of a parent training program. Behavior Research and Therapy, 20, 429-436.

Griest, D. Wells, K. C. & Forehand, R. (1979). An examination of predictors of maternal perception of maladjustment in clinic-referred children. Journal of Abnormal Psychology, 88, 277-281.

Griest, D. L., Forehand, R., Wells, K. C. & McMahon, R. J. (1980). An examination of the differences between nonclinic and behavior-problem clinic-referred children and their mothers. Journal of Abnormal Psychology, 89, 497-500.

Griest, D. L. & Wells, K. C. (1983). Behavioral family therapy with conduct disorders in children. Behavior Therapy, 14, 37-53.

Harter, S. (1983). Developmental perspectives on the self-system. In P. H. Mussen (Ed.), Handbook of child psychology: Vol. 4. Socialization, personality, and social development (4th ed.). New York: John Wiley.

Hawkins, R. P., Peterson, R. F., Schweid, E. & Bijou, S. W. (1966). Behavior therapy in the home: Amelioration of problem parent child relations with the parent in a therapeutic role. Journal of Experimental Child Psychology, 4, 99-107.

Herbert, E. (1970). Parent programs -- Bringing it all back home. Paper presented at the meeting of the American Psychological Association, Miami, 1970.

Hilton, M. E. & Clark, W. B. (1987). Changes in American drinking patterns, 1967-1984. Journal of Studies on Alcohol, 48, 515-522.

Holleran, P. A., Littman, D. C., Freund, R. D. & Schmaling, K. B. (1982). A signal detection approach to social perception: Identification of negative and positive behaviors by parents of normal and problem children. Journal of Abnormal Child Psychology, 10, 547-558.

Holmes, T. H. & Masuda, M. (1974). Life changes and illness susceptibility. In B. S. Dohrenwend & B. P. Dohrenwend (Eds.), Stressful life events: Their nature and effects. New York: John Wiley.

Horton, L. (1984). The father's role in behavioral parent training: A review. Journal of Clinical Child Psychology, 13, 274-279.

Hubert, N., Wachs, T. D., Peters-Martin, P. & Gandour, M. (1982). The study of early temperament: Measurement and conceptual issues. Child Development, 53, 571-600.

Hunter, J. E. & Gerbing, D. W. (1982). Unidimensional measuement, second order factor analysis, and causal models. In B. Staw (Ed.), Research in organizational behavior (Vol. 4) (pp. 267-320). Greenwich, CT: JAI Press.

Johnson, C. A. & Katz, R. C. (1973). Using parents as change agents for their children: A review. Journal of Child Psychology and Psychiatry, 14, 181-200.

Johnson, D. L. & Breckenridge, J. N. (1982). The Houston Parent-Child Development Center and the primary prevention of behavior problems in young children. American Journal of Community Psychology, 10, 305-316.

Johnson, D. L. & Walker, T. (1987). Primary prevention of behavior problems in Mexican-American children. American Journal of Community Psychology, 15, 375-385.

Johnson, S. M. Christensen, A. & Bellamy, G. T. (1976). Evaluation of family intervention through unobtrusive audio recordings: Experience in "bugging" children. Journal of Applied Behavior Analysis, 9, 213-219.

Johnson, S. M. & Christensen, A. (1975). Multiple criteria followup of behavior modification with families. Journal of Abnormal Child Psychology, 3, 135-154.

Jones, R. R., Reid, J. R. & Patterson, G. R. (1975). Naturalistic observation in clinical assessment. In P. McReynolds, (Ed.). Advances in Psychological Assessment (Vol 3). San Francisco: Jossey-Bass.

Karoly, P. & Rosenthal, M. (1977). Training parents in behavior modification: Effects on perceptions of family interaction and deviant child behavior. Behavior Therapy, 8, 406-410.

Knop, J., Teasdale, T. Schulsinger, F. & Goodwin, D. (1985). A prospective study of young men at high risk for alcoholism: School behavior and achievement. Journal of Studies on Alcohol, 46, 273-278.

Kochanska, G., Kuczynski, L., Radke-Yarrow, M. & Welsh, J. D. (1987). Resolutions of control episodes between well and affectively ill mothers and their young children. Journal of Abnormal Child Psychology, 15, 441-456.

Lefkowitz, M. M., Eron, L. D., Walder, L. O. & Huesmann, L. R. (1977). Growing up to be violent: A longitudinal study of the development of aggression. New York: Pergamon.

Loeber, R. (1982) The stability of antisocial and deliquent child behavior: A review. Child Development, 53, 1431-1446.

Loeber, R. & Dishon, T. J. (1982). Early predictors of male deliquency. Psychological Bulletin, 94, 68-99.

Loeber, R. & Schmaling, K. B. (1985). Empircal evidence for overt and covert patterns of antisocial conduct problems: A meta-analysis. Journal of Abnormal Child Psychology, 13, 337-352.

Loeber, R. & Stouthamer-Loeber, M. (1986). Family factors as correlates and predictors of juvenile conduct problems and deliquency. In M. Tonry & N. Morris (Eds.), Crime and justice: Vol. 7. An annual review of research (pp. 29-150). Chicago: The University of Chicago Press.

Maccoby, E. E. & Jacklin, C. N. (1980). Sex differences in aggression: A rejoinder and reprise. Child Development, 51, 964-980.

Maguin, E., Hunter, J. E., Ham, H., Fitzgerald, H. E. & Zucker, R. A. (1991). Structure and psychometric properties of child behavior instruments used in the Michigan State University Multiple Risk Child Outreach Program and the Michigan State University Longitudinal Study. Technical Report. Department of Pyschology, Michigan State University, East Lansing, MI.

Marshall, E. J. & Murray, R. M. (1989). The contribution of twin studies to alcoholism research. In H. W. Goedde, & D. P. Agarwal (Eds.), Alcoholism: Biomedical and genetic aspects (pp. 277-289). Elmsford, NY: Pergamon.

McCord, W., McCord, J. & Zola, I. K. (1959). Origins of crime. New York: Columbia University Press.

McMahon, R. J., Forehand, R. & Griest, D. L. (1981). Effects of knowledge of social learning principles on enhancing treatment outcome and generalization in a parent training program. Journal of Consulting and Clinical Psychology, 49, 526-532.

McMahon, R. J., Forehand, R., Griest, D. L. & Wells, K. C. (1981). Who drops out of treatment during behavioral parent training? Behavioral Counseling Quarterly, 1, 79-85.

Mednick, S. A. & Christiansen, K. O. (1977). Biosocial bases of criminal cehavior. New York: Gardener Press.

Mednick, S. A., Pollock, V., Volavaka, J. & Gabriella, W. F. (1982). Biology and violence. In M. E. Wolfgang & N. E. Weiner (Eds.), Criminal violence. Beverly Hills: Sage.

Mednick, S. A., Gabriella, W. F. & Hutchings, B. (1987). Genetic factors in the etiology of criminal violence. In M. E. Wolfgang, T. E. Moffitt & S. A. Stack (Eds.), The causes of crime (pp. 74-91). Cambridge: Cambridge University Press.

Moreland, J. R., Schwebel, A. I., Beck, S. & Wells, R. (1982). Parents as therapists: A review of the behavior therapy parent training literature - 1975 to 1981. Behavior Modifications, 6, 250-276.

Noll, R. B. & Zucker, R. A. (1985a). Child Behavior Rating Scale. Unpublished manuscript. Michigan State Unviversity, East Lansing, MI.

Noll, R. B. & Zucker, R. A. (1985b). Parent Daily Report-Modified. Unpublished manuscript. Michigan State Unviversity, East Lansing, MI.

O'Dell, S. (1974). Training parents in behavior modification. Psychological Bulletin, 81, 418-433.

O'Farrell, T. J. (1989). Marital and family therapy in alcoholism treatment. Journal of Substance Abuse Treatment, 6, 23-29.

Olweus, D. (1979). Stability of aggressive reaction patterns in males: A review. Psychological Bulletin, 86, 852-857.

Patterson, G. R. & Reid, J. B. (1973). Intervention for families of aggressive boys: A replication study. Behavior Research and Therapy, 11, 383-394.

Patterson, G. R. (1974a). Interventions for boys with conduct problems: Multiple settings, treatments, and criteria. Journal of Consulting and Clinical Psychology, 42, 471-481.

Patterson, G. R. (1974b). Retraining of aggressive boys by their parents: Reveiw of recent literature and followup evaluation. Canadian Psychiatric Association Journal, 19, 142-161.

Patterson, G. R., Cobb, J. A., & Ray, R. S. (1973). A social engineering technology for retraining the families of aggressive boys (pp. 139-224). In H. E. Adams & I. P. Unikel (Eds.), Issues and trends in behavior therapy. Springfield, IL: Thomas.

Patterson, G. R., Ray, R. S., & Shaw, D. A. (1968). Direct intervention in families of deviant children [ORI Research Bulletin 8(9)]. Eugene, OR: Oregon Research Institute.

Patterson, G. R., Chamberlain, P., Reid, J. B. (1982). A comparative evaluation of a parent training program. Behavior Therapy, 13, 638-650.

Patterson, G. R. (1982). A social learning approach: Vol. 3. Coercive family proceses. Eugene, OR: Castalia.

Patterson, G. R. (1983). Stress: A change agent for family process. In N. Garmezy and M. Rutter, (Eds.), Stress, coping, and development in children (pp. 235-264). New York: McGraw-Hill.

Patterson, G. R. (1985). Beyond technology: The next stage in developing an empirical base for training. In L. L'Abate, (Ed.), The handbook of family psychology and therapy, Vol. 2. Homewood, IL: Dorsey.

Patterson, G. R. & Forgatch, M. S. (1985). Therapist behavior as a determinant for client noncompliance: A paradox for the behavior modifier. Journal of Consulting and Clinical Psychology. 53, 846-851.

Patterson, G. R. & Chamberlain, P. (1988). Treatement Process: A problem at three levels. In L. C. Wynne (Ed.), The state of the art in family therapy research. New York: Family Process Press.

Patterson, G. R. (1986). Performance models for antisocial boys. American Psychologist, 41, 432-444.

Patterson, G. R. & Broksky, M. (1966). Behavior modification for a child with multiple problem behaviors. Journal of Child Psychology and Psychiatry, 7, 277-295.

Patterson, G. R., Reid, J. B., Jones, R. R. & Conger, R. E. (1975). A social learning approach to family intervention. Vol. 1. Families with aggressive boys. Eugene, OR: Castalia.

Patterson, G.R. & Stouthamer-Loeber, M. (1984). The correlation of family management practices and deliquency. Child Development, 55, 1299-1307.

Patterson, G. R., Dishion, T. J. & Bank, L. (1984). Family interaction: A process model of deviancy training. Aggressive Behavior, 10, 253-267.

Peed, S., Roberts, M. & Forehand, R. (1977). Evaluation of the effectiveness of a standardized parent training program in altering the interaction of mothers and their noncompliant children. Behavior Modification, 1, 323-350.

Peine, H. (1970). Behavioral recording by parents nad its resultant consequences. Unpublished masters thesis, University of Utah.

Plomin, R. & DeFries, J. C. (1985). The origins of individual differences in infancy: The Colorado Adoption Project. New York: Academic.

Reid, J. B. (1987). Social-interactional patterns in families of abused and non-abused children. In C. Zahn-Waxler, M. Cummings & R. Ianotti (Eds.), Altruism and aggression: Biological and social origins. Cambridge: Cambridge University Press.

Reid, J. B., Kavanagh, K. & Baldwin, D. V. (1987). Abusive parents' perceptions of child problem behaviors: An example of parental bias. Journal of Abnormal Child Psychology, 15, 457-466.

Robins, L. N. (1966). Deviant children grown up. Baltimore: Willianms & Wilkins.

Robins, L. N., West, P. A. & Harjanic, B. L. (1975). Arrests and deliquency in two generations: A study of black urban families and their children. Journal for Child Psychology and Psychiatry, 16, 125-140.

Robins, L. N., Helzer, J. E., Weissman, M. M., Orvaschel, H., Gruenberg, E., Burke, J. D., Jr., Reiger, D. A. (1984). Lifetime prevalence of specific psychiatric disorders in three sites. Archives of General Psychiatry, 41, 949-958.

Rutter, M., Tizard, J. & Whitmore, R. (1970). Education, health, and behavior. New York: John Wiley.

Sanders, M. R. & James, J. E. (1983). The modification of parent behavior: A review of generalization and maintenance. Behavior Modification, 7, 3-28.

Sanders, M. R. & Christensen, A. P. (1985). A comparison of the effects of child management training and planned activities in five parenting environments. Journal of Abnormal Child Psychology, 13, 101-117.

Sayger, T. V., Horne, A. M., Walker, J. M. & Passmore, J. L. (1988). Social learning family therapy with aggressive children: Treatment outcome and maintenance. Journal of Family Psychology, 1, 261-285.

Snyder, J. (1988, June). Maternal stress, family interaction, and child behavior problems. Paper presented at the Third Annual Summer Institute, Family Research Consortium, Hilton Head, South Carolina.

Stevens, G. & Featherman, D. L. (1980). A revised index of socioeconomic indes of occupational status. CDE Working Paper #79-48. Madison, WI: Department of Sociology, University of Wisconsin-Madison.

Susman, E. J., Trickett, P. K., Iannotti, R. J., Hollengbeck, B. E., Zahn-Waxler, C. (1985). Child rearing patterns in depressed, abusive, and normal mothers. American Journal of Orthopsychiatry, 55, 237-251.

Thomas, A. & Chess, S. (1977). Temperament and development. New York: Bruner-Mazel.

Tonge, W. L., James, D. S., & Hillman, S. M. (1975). Families without hope: A controlled study of 33 problem families. Royal College of Psychiatrists, Ashford, Kent: Headley Bros, Ltd.

Wahler, R. G., Winkle, G. H. Peterson, R. F. & Morrison, D. C. (1971). Mothers as behavior therapists for their own children. In A. M. Graziano (Ed.), Behavior Therapy with children. Chicago: Adline-Atherton.

Wahler, R. G. (1980). The insular mother: Her problems in parent-child treatment. Journal of Applied Behavior Analysis, 13, 207-219.

Wahler, R. G. (1980). The insular mother. Journal of Applied Behavior Analysis, 13, 207-219.

Webster - Stratton, C. (1985). Predictors of treatment outcome in parent training for conduct disordered children. Behavior Therapy, 16, 223-243.

Webster - Stratton, C., Kolpacoff, M. & Hollinsworth, T. (1987, August). Self-administered videotape therapy for families with conduct problem children: Comparisons to two other cost effective treatments and a control group. Paper presented at the annual meeting of the American Psychological Association, New York, NY.

Weinrott, M. R., Bauske, B. W., & Patterson, G. R. (1979). Systematic replication of a social learning approach to parent training (pp. 331-351). In P. O. Sjoden, S. Bates, & W. S. Dockens (Eds.), Trends in behavior therapy. New York: Academic Press.

Weinrott, R. M., Reid, J. B., Bauske, B. W. & Brummett, B. (1981). Supplementing naturalistic observations with observer impressions. Behavioral Assessment, 3, 151-159.

Wells, K. C., Griest, D. L. & Forehand, R. (1980). The use of a self control package to enhance temporal generality of a parent training program. Behavior Research and Therapy, 18, 347-353.

Wells, K. C., Forehand, R. & Griest, D. L. (1980). Generality of treatment effects from treated to untreated behavior resulting from a parent training program. Journal of Clinical Child Psychology, 9, 217-219.

West, M. O. & Prinz, R. J. (1987). Parental alcoholism and childhood psychopathology. Psychological Bulletin, 102, 204-218.

Zucker, R. A. (1987). The four alcoholisms: A developmental account of the etiologic process. In P. C. Rivers (Ed.), Nebraska Symposium on Motivation, 1986. Vol. 34. Alcohol and addictive behaviors. Lincoln, NE: The University of Nebraska Press.

Zucker, R. A. (1991). Protocol details of the Michigan State University Multiple Risk Child Outreach Program. (Available from R. A. Zucker, Department of Psychology, Michigan State University, East Lansing, MI).

Zucker, R. A. & Noll, R. B. (1987). The interaction of child and environment in the early development of drug involvement: A far ranging review and a planned very early intervention. Drugs & Society, 2, 57-97.

Zucker, R. A., Noll, R. B. (1984-1987). Prevention of Conduct Disorders: (9/1/84-8/31/87). Michigan Department of Mental Health: Prevention Projects Grant.

Zucker, R. A., Noll, R. B. & Fitzgerald, H. E. (1987-1992). Risk and Coping in Children of Alcoholics: (4/1/87-3/31/92). National Institute of Alcohol Abuse and Alcoholism AA 07065.

Zucker, R. A., Noll, R. B., Kriegler, J. & Cruise, K. A. (1986). A program for the prevention of conduct disorders: Intervention manual. Unpublished manual, Department of Pyschology, Michigan State University, East Lansing, MI.

Zucker, R. A., Maguin, E. T., Noll, R. B. Fitzgerald, H. E. & Klinger, M. T. (1990, August). A prevention program for preschool C.O.A.'s: Design and early effects. Paper presented at the annual meeting of the American Psychological Association, Boston.