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FAMILY STRESS AND CHILD BEHAVIOR PROBLEMS IN SONS OF ALCOHOLICS

By

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ABSTRACT

FAMILY STRESS AND CHILD BEHAVIOR PROBLEMS
IN SONS OF ALCOHOLICS

By

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The relationship among parental lifetime alcohol problems, antisociality, family stress, decoupling and child behavior problems was examined. Participants were a community sample of 209 mothers and 207 fathers and their 3 to 5 year old sons. Data were collected over two waves, with a three year interval between each wave, and were analyzed using analyses of variance, hierarchical regression, and structural equation modeling (SEM). Results supported the hypotheses that antisocial alcoholics (AALs) experienced more stress and decouplings than non-antisocial alcoholics and Controls. Further analyses indicated that lifetime alcohol problems and stress predicted Wave 2 child behavior problems. However, when all variables were considered concurrently using SEM, only Wave 1 child behavior problems predicted Wave 2 child behavior problems. The results indicate that as early as 3 years of age, children of AALs may be on a developmental trajectory that leads to later antisociality and alcohol problems.

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TABLE OF CONTENTS

APPENDICES (cont'd)

LIST OF TABLES

TABLE

List of Tables (cont'd)

LIST OF FIGURES

FIGURE

Introduction and Literature Review

The homes of alcoholics have been characterized by marital discord, parent-child conflict (Reich, Earls, & Powell, 1988), and less happy, cohesive and stable parent-child relationships (Velleman & Orford, 1993). Thus, it seems clear that living in a family with an alcoholic member increases the level of stress (Moos & Billings, 1982). Alcoholism in and of itself is a form of chronic stress (Clair & Genest, 1987) not only for the alcoholic but for the family members as well. Thus, along with the everyday minor events encountered by all families that contribute to stress (Crnic & Greenberg, 1990), the alcoholic family is faced with the added stress of alcoholism. For the alcoholic family "normal" child behaviors such as bickering, whining, and minor school problems add to other problems taxing or exceeding coping mechanisms. The build-up of family stress may in turn affect child outcomes (Cohen, Burt, & Bjorck, 1987; Holahan & Moos, 1987).

The purpose of the present research was to examine the relationship among parental lifetime alcohol problems, family stress, and child behavior problems. To explore the mechanisms involved in the development of problem behaviors in COAs, data collected over two periods of time, with a

3-year interval between each measurement were analyzed.

Researchers have examined adult stress in the context of alcoholism, commonly focusing on stress as a variable that increases or moderates the risk for becoming an alcoholic (e.g., Cooper, Russell, Skinner, Frone, & Mudar, 1992; Johnson & Pandina, 1993). However, little research has centered on child stress, even though child life events stress has been linked to the development of emotional and behavioral problems in groups of "normal" individuals (Compas, Howell, Ledoux, Phares, & Williams, 1989). Likewise, little attention has been focused on the contribution of parental stress to the development of problem behaviors in COAs, although research shows that parental stress plays an important role in the expression of child problem behaviors (e.g., Cohen et al., 1987; Holahan & Moos, 1987). Considering that parental variables and family variables combine to form the context in which the child develops (Banez & Compas, 1990), it is important to appraise the influence of family stress on problem behaviors in COAs.

Children of alcoholics are at increased risk for developing a number of adverse outcomes including behavioral and emotional problems (Dawson, 1992; Jansen, Fitzgerald, Ham, & Zucker, 1995; West & Prinz, 1987; Woodside, 1988). However, the fact that a child lives in a home with a parent who uses or abuses alcohol may not be the sole determinant of whether or not that child develops problem behaviors. Rather, it may be the case that other factors in the child's

environment are more important for predicting child outcome, or that such variables in combination with parental alcoholism predict child adjustment. That is, individual child factors such as cognitive ability and intelligence (Ervin, Little, Streissguth, & Beck, 1984) contribute to COA outcome, but so do environmental factors such as socioeconomic status (SES; Fitzgerald & Zucker, 1995), family environment (Velleman & Orford, 1993) and family stress (Moos & Billings, 1982).

Multifactorial Approach

Although being the child of an alcoholic does not automatically place one on a trajectory to becoming alcoholic in later life, many studies have reported that such offspring are at heightened risk for a variety of negative outcomes (e.g., Cotton, 1979). Some of these outcomes include developing emotional and/or behavioral problems as well as abusing alcohol (West & Prinz, 1987). However, because the homes of some alcoholics have been described as confused, disorganized (Jacob & Leonard, 1986; Woodside, 1983), lacking adequate parenting for the offspring as well as lacking parent-child contact (Reich et al., 1988), it is reasonable to expect that many COAs should experience developmental difficulties. General adversity in families is believed to be related to problem behaviors in children (Richman, 1977) and perhaps to later alcoholism. Yet, with the range of variability in COA outcome (Jacob, 1992) one variable in isolation cannot fully explain the

development of child behavior problems (Dadds, 1987). Children live in contexts that influence how they behave. However, individuals also influence the contexts in which they develop (Scarr & McCartney, 1983). Likewise, the perception and interpretation of events is idiosyncratic to the individual as well as to the specific event. Therefore, the most fruitful approach to examining the outcome of offspring of alcoholics is one in which multiple factors are considered (Fitzgerald, Davies, Zucker, & Klinger, 1994; Fitzgerald, Zucker, & Yang, 1995).

The Michigan State University-University of Michigan (MSU-UM) Longitudinal Study (Zucker, Noll, & Fitzgerald, 1986; Zucker & Fitzgerald, 1991) has examined a wide variety of factors that may contribute to COA risk for substance abuse and child behavior problems. Among some of the variables studied in relation to child problem behaviors are child temperament (Jansen et al., 1995; Yang, 1992), parental antisociality, parental depression (Ellis, 1992; Moses, 1992), family conflict (Reider, 1991), child maltreatment, child aggressiveness (Muller, Fitzgerald, Sullivan, & Zucker, 1994) and stress (Gonzalez, Zucker, & Fitzgerald, 1993; Muller et al., 1994; Yang, 1992). However, the studies have been cross-sectional in nature and thus have not examined the longitudinal relationships among the variables.

Stress

Measurement Controversy

The study of stress has a long history and cuts across many domains in psychological research (Beckman-Bell, 1981). Nonetheless, investigators have not been able to generate a widely accepted, consensual definition of the phenomenon (Lazarus & Folkman, 1984). In the psychological literature regarding stress, definitions of the term vary according to what is being studied and who is doing the study. Even the observation and measurement of stress has been surrounded by considerable controversy, with many arguing for concurrent measurements (Baum, Grunberg, & Singer, 1982), but few actually using more than one type of stress measure.

Currently, four types of measurement are used in the evaluation of stress (Baum et al., 1982). These include performance measures, psychophysiological measures, biochemical measures, and self-report inventories (Baum et al., 1982). Performance measures appraise the effect of a stressful situation on an ability such as problem solving. Psychophysiological measures of stress entail the assessment of an organ or system function, such as electrodermal response or muscle tension, and biochemical measures assess activity level within the endocrine system. Lastly, self-report inventories, the most common type of stress measurement used in psychological research, involve direct assessment of the influence of stressors on individuals' feelings or cognitions. Although Baum and his colleagues

have argued for the use of parallel and multiple measures of stress, single method approaches are most commonly used. Using multiple measures is not only time consuming but costly as well. Evaluation of family stress for the present study is limited to the use of self-report inventories (the Hassles Scale; Kanner, Coyne, Schaefer, & Lazarus, 1981; the Family Events Questionnaire; Coddington, 1972; The Family Crisis List; Patterson, 1982) due to the archival nature of the data. Ideally, information from multiple measures of stress should be collected and analyzed.

Stress Theory

Although many disagreements have surrounded the definition, measurement, and use of the term stress, it has been an extremely enduring one (Garmezy, 1983). The endurance of the concept may be attributed to the fact that stress both in child and adult research has been found to play an important role in psychological as well as physical well-being (Compas, 1987).

Stress is a complex rubric rather than a simple variable that is an inevitable part of life (Lazarus & Folkman, 1984). According to Lazarus' (1966) relational, cognitive theory, stress is based on cognitive appraisal, a process by which individuals evaluate to what extent and why a particular transaction or series of transactions between the person and environment is stressful. Events are perceived and reacted to differently from person to person, therefore, the presence of a hypothesized stressor may not

necessarily be reacted to negatively. For instance, although some aspects of parenting are stressful for some parents, these same instances may not be perceived as such by others. Perception of events as stressful is, to some extent, idiosyncratic as are the number and type of resources people possess to cope with the situation. However, the possession of resources can determine how the situation will be handled. Generally, persons who possess more coping resources, such as useful coping strategies and social support, deal with the stressful situations more effectively (Lazarus & Folkman, 1984). For example, not only do higher SES families encounter fewer negative events than lower SES families, when they do encounter a potentially stressful situation they have access to more resources, such as a wider social network, to help them more effectively cope with the event (Adler et al., 1994).

Stress can be subtyped into a variety of categories (Compas, 1987); for this reason, efforts to define it precisely are complicated. For instance, stress can be conceptualized as a major change in an individual's life. This kind of stress is often referred to as life events stress (e.g., birth of a child, marriage, the death of a loved one, the diagnosis of a major illness). Conversely, stress can be caused by ongoing daily transactions with the environment. This kind of stress is referred to as daily hassles (e.g., missing the bus, being caught in a traffic jam). Each of these categories of stress can be further

divided into dichotomies such as chronic or acute, normative or atypical, or large or small (Compas, Orosan, & Grant, 1993).

Although Lazarus (1966) argues that stress is based on individual cognitive appraisals, he contends that to some degree, individual differences are a result of actual environmental differences people experience (Lazarus & Folkman, 1984). Thus, the number of daily hassles and life events people report may be an index of the stress they are experiencing. The present research evaluates stress in precisely this manner by assessing the number of daily hassles and life events stressors individuals are experiencing. A more direct assessment of cognitive appraisal is not available in the longitudinal data set.

Stress and Child Outcome

Stress is a process that affects both psychological and physical well-being (Lazarus & Folkman, 1984). Numerous studies have investigated the impact of stress on parenting (e.g., Crnic & Greenberg, 1990; Koeske & Koeske, 1990), marital interaction (e.g., Whiffen & Gotlib, 1989), physical well-being (e.g., DeLongis, Coyne, Dakof, Folkman, & Lazarus, 1982) and child maltreatment (e.g., Smith, 1984; Wolfe, 1985).

For example, Muller and associates (1994) examined the influence of stress on child maltreatment in a community sample of 90 alcoholic families with children between 3 and 5 years of age. A greater number of lifetime alcohol

problems predicted more child maltreatment for both mothers and fathers. However, the relationship between parental stress and child maltreatment differed for both mothers and fathers. Although the effect of stress on child maltreatment was significant for both parents, the process by which it influenced the outcome variable differed. For example, for fathers both stress and a measure of social support had independent direct effects upon child maltreatment. However, for mothers, the effects of stress on child maltreatment were moderated by social support.

Stress and Child Behavior Problems

A variety of researchers have found a significant relationship between parental stress, both daily and life events, and behavior problems in offspring. For instance, Beautrais, Fergusson and Shannon (1982), using maternal reports of behavior problems for offspring at 2, 3, and 4 years of age, examined the relationship of maternal stress and behavior problems in preschool aged children. Mothers were asked open-ended questions concerning their child's behavior and were asked to complete a shortened version of the Holmes and Rahe (1967) Social Readjustment Rating Scale. The results indicated that mothers who reported a greater number of stressful life events, also reported more problem behaviors for their children.

Life Events versus Daily Hassles Stress

In the Beautrais and associates (1982) study only maternal life events stress was assessed. Recently, however, researchers have pointed to the differential impact of daily events and life events stress on problem behaviors in children and adolescents (Compas, Howell, Phares, Williams, & Giunta, 1989). Numerous researchers have suggested that daily hassles and uplifts stress differentially affect physical well-being more than do life events stress (DeLongis et al., 1982). The basis of the argument is traced to Jessor and Jessor's (1973) distinction between proximal and distal effects. Jessor and Jessor (1973) proposed that human actions take place in multiple environments concurrently, and that these environments can be ordered "along a dimension of their conceptual proximity to experience, interpretation, psychological significance, or response by an actor" (p. 805). The proximal environment is one that has personal meaning to the actor, can be experienced and responded to, and is perceived, whereas distal environments are remote from experience, and are without functional significance for the person.

DeLongis et al. (1982) argue that daily hassles are proximal measures of stress as they involve the immediate perceptions and appraisals of events. On the other hand, life events are distal measures of stress because they do not involve the here and now and do not include the ongoing pressures of life. Accordingly, daily hassles stressors

should have a more direct impact upon the individual than do life events stressors.

However, the view of DeLongis et al. (1982) denies the importance of the influence of the accumulation of life events stress on individual outcomes by emphasizing the importance of immediate events over those that have accumulated over the life course. Perhaps when questioned, individuals are more likely to rate recent events as being more stressful than past events because recent events are related to immediate problem solving demands. That is, individuals experiencing daily stress in their lives may simultaneously be coping with life events stress. As a result of resources being taxed (dealing with life events stress) individuals may be less effective in dealing with daily stressors. Therefore, both life events stress and daily stress must be examined in order to gain a better understanding of how stress affects well-being and psychological outcome (Wagner, Compas, & Howell, 1988).

Hall and Farel (1988) examined the differential impact of life events and daily hassles stress on child outcome. They explored the effects of maternal stress and depression on child behavior problems in a sample of 115 low income mothers of children between the ages of 5 and 6 years who were attending kindergarten. Seventy three percent of the subjects where African-American, the remainder (27%) were European-American. The results indicated that daily stressors, life events stress, and maternal depressive

symptoms were all positively correlated with mothers' ratings of child behavior problems, when analyzed individually. However, the strongest correlation was that between daily stressors and child behavior problems. Furthermore, the best model predicting child problem behaviors was one in which both life events stress and daily stress were included but maternal depressive symptoms were not. Daily stressors were significantly associated with child behavior problems, as were life events. However, maternal daily stress was more strongly associated with child behavior problems than was life events stress. Hall and Farel (1988) concluded that these results may be due to maternal personality characteristics. Mothers who are stressed may view their childs' behavior as more problematic than it is in actuality (Fergusson, Horwood, & Shannon, 1984). However, the interpretation of maternal reports as distorted is problematic in light of a recent review article focusing on depressed mothers' reports of child behavior problems (Richters, 1992). This review indicated that although depressed mothers report behavior problems for their children more often than do nondepressed mothers, there was no evidence that perceptions of the depressed mothers were distorted (Richters, 1992). This is consistent with the alternative conclusion drawn by Hall and Farel (1988) that children living with mothers who are faced with many daily stresses may be reacting to maternal personality by exhibiting problem behaviors (Beautrais et al., 1982).

Life Events and Daily Stress Considered Simultaneously

Numerous studies have compared the effects of daily events and life events stress on psychological and somatic symptoms, and most have found daily events stress to be a better predictor of the outcome in question. However, Wagner et al. (1988) argue that no study has tested models in which daily and life events stress act as mediators for each other on symptoms. The researchers believe that both life events and daily events stress must be considered simultaneously in order to clarify the relationship between stress and psychological or somatic symptoms. Previously, Kanner et al. (1981) suggested that daily hassles may mediate the relationship between life events stress and symptoms. Yet, Kanner et al. (1981) consistent with other researchers, found that daily events stress is more strongly related to psychological symptoms, and is in fact a better predictor of psychopathology than is life events stress.

Wagner and his associates (1988), using structural equation modeling procedures, tested the hypothesis that daily events stress mediates the effects of life events stress on psychological symptoms. In an examination of the transition of adolescents from high school to college, stressful events, both life events and daily hassles, were measured by a 196-item version of the Adolescent Perceived Events Scale (Compas, Davis, Forsythe, & Wagner; 1987). The Hopkins Checklist (Derogatis, Lipman, Rickels, Uhlenhuth, & Covi, 1974) operationalized psychological symptoms. The

researchers found that daily hassles mediated the relationship between life events stress and psychological symptoms. A direct pathway from life events stress to psychological symptoms did not exist; however, Wagner and his colleagues concluded that daily hassles and life events stress must be considered concurrently to fully understand the role of stress on psychological symptomatology. Daily events stress that leads directly to symptoms may be caused by major events. Moreover, Wagner et al. (1988) assert that some major events may be powerful enough to have a direct impact upon symptoms, but are so short lived that they are not identified through existing methodologies for the study of psychosocial stress. These findings are consistent with a developmental framework and by simultaneously considering life events and daily hassles stress are painting a broader, more realistic picture of development. How one copes with stress is associated with the level of stress the individual is experiencing (Lazarus & Folkman, 1984). Based upon the arguments of Wagner et al. (1988), the present study, examined the impact of both daily stress and life events stress, simultaneously.

Alcohol-Specific and Nonalcohol-Specific Effects

In addition to studying multiple factors within a contextual framework, researchers must determine the differential impact of variables on child outcome. To gain a better understanding of the process by which COA outcome is affected, it must be determined whether it is the

alcoholism itself that directly influences child outcome or whether other factors (related to alcoholism) in the alcoholic family environment more strongly influence child outcome. In other words, both alcohol-specific mechanisms as well as nonalcohol-specific mechanisms must be incorporated into a research model that aims to map COA outcome (Zucker, 1994; Zucker & Fitzgerald, 1991).

According to Zucker and Fitzgerald (1991) alcohol-specific mechanisms are those by which children learn about alcohol use and its expected effects. For instance, compared to children whose parents do not exhibit problem drinking behavior, children who live in a home with an alcoholic father show greater familiarity with alcoholic substances (Noll, Zucker, & Greenberg, 1990). Nonalcohol-specific mechanisms also influence child outcome and consist of factors "not specific to alcohol use, but that precede it and are part of the causal chain of problem alcohol involvement" (p.19). Nonalcohol-specific factors include variables such as parental depression, family environment, and family stress.

Alcohol-Specific/Nonalcohol-Specific Factors and Child Outcome

A series of studies have examined the differential effects of alcohol-specific and nonalcohol-specific mechanisms. For example, Moses (1992) examined the relationship between family factors, parental psychopathology, parental lifetime alcohol problems and

child problem behaviors in 142 families of alcoholics and 30 control families. The results suggested that parental lifetime alcohol problems (alcohol-specific factor) was a better predictor of parental perceived child total problem behaviors as measured by the Child Behavior Checklist (Achenbach & Edelbrock, 1983), than were family SES, and parental intelligence (nonalcohol-specific factors). However, when parental psychopathology was included in the model, it was more strongly related to child problem behaviors than was the father's alcoholism. Parental psychopathology was defined by the nonalcohol-specific factors of parental antisocial behavior, parental depression, and the alcohol-specific factor of maternal alcoholism. Therefore, nonalcohol-specific factors in combination with alcohol-specific factors may be more meaningful in predicting child outcome than is paternal alcohol problems alone.

Jacob, Krahn and Leonard (1991) also explored the differential impact of alcohol-specific and nonalcohol-specific factors on child outcome. Parent-adolescent interactions were examined in 122 intact community families. The respondents included 44 families of alcoholic fathers with no other psychopathology, 37 families of depressive fathers, and 40 control families. In order to be eligible to participate in the study all mothers had to make a diagnosis of no current psychopathology.

Jacob and associates (1991) asked respondents to

identify areas that family members wished to change in other members. The families were then videotaped engaging in problem-solving interactions related to the themes they earlier identified. The results revealed that there were no overall significant differences between the families of alcoholics and depressives in their interactions with their adolescents. Parent-child interactions in the alcoholic and depressive groups were characterized by lower rates of congeniality (humor, smile-laugh and talk) and less relaxed and pleasant interactions than were the interactions for the "normal" or control parent-adolescent group.

The results of the above study were interpreted by Jacob et al. (1991) to suggest that general distress rather than the presence of an alcoholic parent was the crucial variable in influencing parent-child interaction. Although Jacob et al. (1991) concluded that having an alcoholic parent did not produce a unique impact upon family interactions, they did suggest that interactions may change as the children increase in age or if interactions are assessed by other methods or procedures. Nevertheless, the results may suggest that nonalcohol-specific factors or factors other than parental alcoholism have a strong impact on parent-child interactions in families of alcoholics. Thus, other stressful events in the environment of the family may in fact exert a more powerful influence on the parent-child relationship than does the alcoholism itself.

Rubio-Stipec, Bird, Canino, Bravo and Alegria (1991)

reported that COAs in their Puerto Rican probability sample did not differ significantly from children of parents with other Diagnostic Interview Schedule (DIS) disorders (Robins, Helzer, Croughn, & Ratcliff, 1980). Subjects included 52 alcoholic parents and 78 parents with other DIS (Robins et al., 1980) disorders with offspring between the ages of 4 and 16 years.

Family environment and parental alcoholism were used to predict child behavior problems. Analyses were conducted separately for both parent and child responses. The results revealed that when parents were the informants of the child's behavior the family environment as defined by family dysfunction, marital discord, and the number of stressful life events in the family had a stronger influence on child problem behaviors than did parental alcoholism. That is, when the family environment variables (nonalcohol-specific factors) were added to the regression equation, parental alcoholism (alcohol-specific factor) was no longer significant. On the other hand, when children were the informants of their own behavior the relationship between parental alcoholism and child behavior problems was stronger than that of behavior problems and family environment.

Although Rubio-Stipec and associates (1991) do not fully explain the different findings, they do suggest that differences between parental reports and child reports may be due to methodological artifacts. These methodological artifacts include the underreporting of certain child

behaviors by parents because of their subjective nature, and the deliberate underreporting of behaviors by children to psychiatrist interviewers.

Conversely, Phares, Compas and Howell (1989) suggest that differences between parent and child reports are not only due to the fact that children's self-reports represent a compilation of behaviors across many situations, whereas parents reports are limited to behaviors in specific contexts (e.g., the home), but also differences may be affected by social cognitive biases in processing of information. Children base self-reports on subjective events while adults base their reports on overt behavior.

Based upon their findings, Rubio-Stipec et al. (1991) believe that for their sample, parental psychiatric disturbance is a better predictor of child outcome than is paternal alcoholism. Yet, overall, the major finding of the study was that the alcoholism, in addition to an adverse family environment, increased risk for child maladjustment. Thus, nonalcohol-specific factors such as the family environment may more strongly predict child outcome than do alcohol-specific factors such as parental alcohol problems. However, both nonalcohol-specific and alcohol-specific factors in combination more fully explain the increase in risk for child maladjustment.

These results many be due to the fact that of the alcoholic parents either the mother, father, or both parents met lifetime criteria for a DIS/DSM-III diagnosis of alcohol

abuse and/or dependence, but for most families it was the men that were diagnosed as abusing or dependent (86.5%). In contrast, for families in the other DIS disorders group most of the individuals diagnosed with a disorder (80.8%) were the mothers. The dynamics for a family with only one alcoholic member may completely differ from one in which both parents are alcoholic. As well, the findings may not be as clear if families containing an alcoholic father are compared to those in which it is the mother who exhibits psychopathology. That is, alcoholism in men may not be comparable to psychopathology in women because of gender differences as well as different roles taken in the family unit.

Consistent with the findings of the study by Rubio-Stipec and associates (1991) are the results reported by Jacob & Leonard (1986). Jacob and Leonard found very little difference between COAs and children of depressives on measures of problem behaviors. These analyses were conducted on the same study sample as was used for the Jacob and associates (1991) study, but with only 134 of the families (43 families with alcoholic fathers, 45 families with depressive fathers and 46 control families). The results revealed no significant differences in the number of total problem behaviors for the sons of alcoholics and the sons of depressives. Only the children of the most severe alcoholics showed serious impairment.

Additionally, COAs and children of depressives were

experiencing more parental perceived problem behaviors than were the children in the control group. Jacob and Leonard concluded that the lack of difference evidenced between children of alcoholics and depressives may suggest that factors other than alcoholism play a greater role in the development of child behavior problems. Yet, they acknowledged that only the sons of the most severe alcoholics with concomitant psychopathology showed serious impairment. Although mothers of the impaired children did not make a diagnosis of psychopathology they also scored significantly higher than mothers of the unimpaired children on certain scales of the MMPI. Thus, mothers of COAs may play a mediating role between the alcoholic father and COA outcome. A "healthy" mother may be able to compensate within the family system for the alcoholic father, whereas a mother with problems may not be able to protect her child from adverse influences (Jacob & Leonard, 1986).

Based upon the aforementioned findings, it is hypothesized in the present study that family stress, a nonalcohol-specific factor, will more strongly predict child problem behaviors than will parental alcoholism, an alcohol-specific factor. In other words both nonalcohol-specific and alcohol-specific factors may predict child outcome when they are entered alone into separate models. However, when both factors are entered into a model simultaneously, only the nonalcohol-specific factors will significantly predict child behavior problems.

Alcohol Typologies

Although numerous researchers have reported that COAs are at increased risk for developing behavioral and emotional problems (e.g., Dawson, 1992; Jansen et al., 1995; West & Prinz, 1987; Woodside, 1988), many COAs function at average or above average levels of children of non-alcoholics (Clair & Genest, 1987). Outcome for COAs is variable (Jacob, 1992), and inasmuch as adults who exhibit problems with alcohol use and abuse are a heterogeneous group, so too, are their children. Some researchers have addressed the issue of heterogeneity among alcoholics by differentiating them into a variety of categories or types.

Over the past 60 years a number of researchers have proposed typologies by which alcoholics can be categorized (e.g., Cloninger, 1987; Jellinek, 1960; Knight, 1937; Penick, Read, Crowley, & Powell, 1978; Zucker, 1987; 1994). However, the basis for categorization has varied. Some investigators categorize alcoholics on the basis of psychological characteristics (e.g., Knight, 1937) or familial history of alcoholism (e.g., Penick et al., 1978). Other researchers classify alcoholics according to personality characteristics, or the presence of antisociality when drinking (e.g., Cloninger, 1987), while still others use a combination of these factors in their typological classifications (e.g., Ellis, 1992; Zucker, 1987; 1994).

For instance, Cloninger's (1987) Type 1/Type 2

classification is based upon personality characteristics, the presence of antisociality when drinking, as well as on genetic risk. The Type 1 alcoholic is characterized by a passive-dependent or "anxious" personality, while the Type 2 alcoholic is characterized by the inability to abstain from drinking (Cloninger, 1987). Furthermore, alcohol dependence for the Type 1 alcoholic occurs at a later age and includes depression, medical complications, and feelings of guilt. According to Cloninger, most female alcoholics are considered Type 1 alcoholics. The onset for Type 2 alcoholism is earlier in life than for Type 1 alcoholism, and includes drinking accompanied by antisocial behavior. Lastly, Type 2 alcoholics are more likely to have other alcoholic relatives than are Type 1 alcoholics, providing some evidence for a genetic predisposition to problem drinking.

Although Cloninger's (1987) subtypes may be useful in distinguishing a portion of alcoholics, it fails to classify them all (Penick et al., 1990). For example, Penick et al. (1990) found that a large number of the hospitalized alcoholics in their sample were either not classifiable under the Cloninger Type 1/Type 2 schema or fell under both categories.

Zucker's (1987; 1994; Ellis, 1992) typology of two alcoholisms -- Antisocial Alcoholic (AAL)/Non-Antisocial Alcoholic (NAAL) -- considers familial history of alcoholism, age of onset, severity of alcohol and other drug

involvement, and the presence of other psychopathology. Two important differences between Zucker's typology and Cloninger's are that Zucker's typology is based on a developmental hypothesis and, in addition, Zucker proposes that antisocial behavior both in adulthood and childhood should be considered in the classification process.

When Zucker, Ellis and Fitzgerald (1994) tested the typologies on a population-based group of 102 alcoholic men recruited from the community, the researchers found that they could clearly differentiate AALs from NAALs on the basis of childhood and adulthood antisociality. That is, the AALs scored significantly higher on measures of childhood and adulthood antisocial behavior than did the NAALs. In addition, the AALs had an earlier age of onset for drinking problems, more alcohol-related problems, and a longer duration of use. Antisocial Alcoholics also reported experiencing more depression and other drug involvement, more divorces and separations, more alcoholism in relatives and a lower socioeconomic status in adulthood (but not childhood) than NAALs (Zucker et al., 1994). In sum, AALs reported more negative life events, thus, more stressors in their lives than did NAALs.

Evidence is nearly overwhelming in support of at least two types of alcoholics (e.g., Cloninger, 1987; Ellis, 1992; Zucker, 1987, 1994; Zucker et al., 1994). For this reason and because Zucker's typology is based on a developmental hypothesis, families in the present study will be classified

according to Zucker's AAL/NAAL typology. Furthermore, based upon the aforementioned studies, it is hypothesized that AALs will report more stress in their lives then do NAALs and that children of AALs will exhibit higher levels of behavior problems than will children of NAALs.

Parental Decoupling

The divorce or separation of parents is a major change in the family environment that influences both parental and child outcome. The post-divorce period is a stressful time for both parents and children (Hetherington, Cox, & Cox, 1982). The stress from a divorce or separation affects parenting attitudes as well as family interactions (Webster-Stratton, 1990). For example, immediately following a divorce or separation, parents are more punitive, irritable, and less affectionate with their children (Hetherington et al., 1982). Furthermore, within two years of the divorce or separation both parents and children exhibit increased emotional, physical and behavioral problems (Hetherington, 1989).

However, a variety of factors influence family adjustment following the separation of parents (Hetherington, 1989). For instance, individual child characteristics such as age, intelligence, and sex are among some of the variables that influence child outcome. The amount of time that has passed since the divorce is a predictor of how the entire family is functioning (Hetherington, 1989). According to Hetherington (1989),

within two years of a divorce many children as well as parents exhibit increased emotional and behavioral problems. Yet, by two years following a divorce both adults and children show improvement and are adapting well to the situation. Therefore, as time passes the situation improves for members of the family.

Based upon the findings of Hetherington (1989) that there are increased psychological and behavioral problems immediately following a divorce, it was hypothesized in the present study that family stress levels at Wave 2 would increase following a decoupling. Since decoupling may also influence child outcome at Wave 2, an increase in the number of child behavior problems was also hypothesized. Lastly, based upon findings from Zucker et al. (1994) that AALs experience more divorces than NAALs, it was hypothesized that AALs in this sample would report the most decouplings at Wave 2, followed by NAALs, followed by Controls.

In summary, the present study, examined the associations between family stress, parental antisociality, parental lifetime alcohol problems, parental decoupling, and total child problem behaviors. The relationships were explored longitudinally (2 waves of data with three years between the two measurements) so that developmental progression could be observed.

Summary of Hypotheses

Zucker et al. (1994) reported that AALS exhibit more psychopathology and problems related to drinking behavior than do NAALs and Controls. Based upon these findings the following hypotheses were proposed:

Hypothesis 1: Antisocial alcoholics will experience more family stress than NAALs, who will experience more family stress than Controls at both Wave 1 and Wave 2.

Hypothesis 1.1: At Wave 1, AALs will experience higher levels of family stress than NAALs, and NAALs will experience more family stress than Controls.

Hypothesis 1.2: At Wave 2, families in the AAL group will exhibit the most stress, followed by families in the NAAL group, followed by Controls.

Hypothesis 1.3: Antisocial alcoholics will exhibit more family stress from Wave 1 to Wave 2 than NAALs, who will exhibit more family stress than Controls.

Hypothesis 2: Antisocial alcoholic couples will experience more decouplings by Wave 2 than will NAAL couples, followed by Controls.

Hypothesis 3: Children of AALs will exhibit more total behavior problems than NAAL children, followed by Controls, over the two Waves of data collection.

Hypothesis 3.1: At Wave 1, children of AALs will exhibit more behavior problems than children of NAALs, or Controls.

Hypothesis 3.2: At Wave 2, children of AALs will exhibit more behavior problems than children of NAALs, followed by Control children.

Hypothesis 3.3: Across Wave 1 and Wave 2, children of AALs will exhibit more behavior problems than children of NAALs, while Control children will exhibit the fewest behavior problems.

Researchers have reported that nonalcohol-specific effects are stronger predictors of child outcome than are alcohol-specific effects (Rubio-Stipec et al., 1991). Based upon such findings, it was proposed that:

Hypothesis 4: Higher scores of Wave 1 family stress (a nonalcohol-specific factor) will be more strongly related to parent-reported child behavior problems than will parental lifetime alcohol use (an alcohol-specific factor).

Hypothesis 4.1: Higher scores of Wave 2 family stress, will be more strongly related to Wave 2 child behavior problems than will Wave 1 lifetime alcohol use.

During the first two years following a divorce, parents and children exhibit increased emotional and behavioral problems (Hetherington, 1989). Considering that in the present study only 3 years pass between Wave 1 and Wave 2 data collection, and that families are recruited only if they are intact at Wave 1, it was hypothesized that:

Hypothesis 5: A decoupling by Wave 2 will be associated with increased levels of Wave 2 stress for AALs and NAALs.

Hypothesis 6: For alcoholic families, parental decoupling will be associated with higher levels of total behavior problems than will parental intactness.

The longitudinal relationship among all the study variables were examined. Researchers report that nonalcohol-specific factors are stronger predictors of outcome than alcohol-specific factors (e.g., Rubio-Stipec et al., 1991). In order to test and verify these findings three competing models were proposed and tested the hypothesis that:

Hypothesis 7: The nonalcohol-specific factor of Wave 1 family stress and the child outcome of Wave 2 behavior problems will be mediated by the nonalcohol-specific factors of Wave 2 family stress and decoupling. The alcohol-specific factor of parental risk (lifetime alcohol problems and antisociality) will only have a direct path to child outcome.

Method

Subjects

Subjects were 416 parents (209 mothers, 207 fathers) and their children participating in a larger longitudinal study, the MSU-UM Family Study (Zucker & Fitzgerald, 1991; Zucker et al., 1986). Both Risk families as well as Control families were recruited by the study which is tracking the etiology of alcoholism in COAs.

Recruitment of the Risk families was by way of a net of administrative arrangements covering five local district courts and all drunk driving convictions in a four county area in mid-Michigan. Court personnel in this four county area identified all men having a blood alcohol concentration (BAC) of 0.15 % or higher at time of first arrest (indicating high tolerance) or 0.12 % or higher if this was a second or more documented drinking-related driving problem, and asked them if they would allow their names and phone numbers to be released to the research staff for potential involvement in a "study of child development and family health." The fact that these men are convicted drunk drivers suggests that their alcoholism is more heavily combined with antisociality than is true of other alcoholics (Cloninger, 1987; Zucker, 1987; 1994).

Inclusion criteria for involvement in the project were having a biological son between the ages of 3.0 and 5.9 and living in an intact family with the mother of the child. No family was included if there was evidence of fetal alcohol

syndrome (Cooper, 1987). To restrict ethnic variation that we were not able to oversample because of the study locale, all subjects were of nonHispanic Caucasian heritage. Respondents were told that all information collected was confidential and that participation or non-participation in the study had no connection to the courts. Seventy-nine percent of all men approached by court personnel agreed to have their names released and of these 91% agreed to participate in the study.

Later evaluations of the men at Wave 1 verified that fathers met formal diagnostic criteria set by Feigner et al. (1972) for a diagnosis of probable or definite alcoholism at the time of initial contact. The diagnosis was established with information from the Short Michigan Alcohol Screening Test (Selzer, 1975) and was later verified with the Diagnostic Interview Schedule (DIS; Robins et al., 1980). Alcohol abuse/alcoholism of the mother was neither a basis for accepting nor rejecting Risk families for the study.

Control families were recruited at Wave 1 using door-to-door canvassing starting one block away from the alcoholic family and staying within the same census area where possible. The basis for choosing these families was demographic proximity and having a same-aged biological son (within 6 months) as the neighborhood alcoholic family. The fathers and mothers in the Control families were screened using Feigner's criteria to ensure they did not meet the diagnosis of probable or definite alcoholism or drug

dependence. This procedure yielded Control families, but also serendipitously accessed other families with an alcoholic father who met Feighner criteria, but where there had been no alcohol-related or other drug-related arrests during the lifetime of the target child. The portion of the group that failed to meet the Feigner criteria continued to participate in the project, but were separated from the Control and Risk families into a third group referred to as Community Alcoholics.

Procedure

Information from the families participating in the study was gathered through self-report questionnaires, direct observations, and interviews. The data for the two Waves were collected by trained project staff, both undergraduate and graduate students, who were blind to family risk group status. During each wave of data collection, families participated in 18 hours of contact with project personnel. Many of the same procedures used in Wave 1 data collection were employed for Wave 2. However, some additional measures were added to Wave 2.

Families were contacted for the first time (Wave 1) when the target children (i.e. male offspring) were 3 - 5 years old. Wave 2 data collection occurred three years after initial contact, when the male target child was 6 - 8 years old. The majority of the information was gathered in the respondents' homes with the exception of two times during each wave of data collection when the family was

asked to come to the university to be videotaped in various interaction situations. Families received some compensation for their involvement.

Instruments

Parent/Child Indicator Measures

Parental background information. A demographic questionnaire was administered during the first visit. This questionnaire inquired about self-reported background information and provided the measures of parent's age and parent's years of education.

Family stress. In the present study, stress was measured by three different questionnaires: the Daily Hassles and Uplifts Scale (Kanner et al., 1981); the Family Events Questionnaire (Coddington, 1972); and the Family Crisis List (Patterson, 1982).

The Daily Hassles and Uplifts Scale (Kanner et al., 1981) was used to measure the daily stress experienced by parents. This instrument is comprised of two scales: The 117-item hassles scale; and the 135-item uplifts scale. The hassles scale measures daily minor stresses that characterize everyday life, while the uplifts scale measures pleasures that characterize everyday life. Each scale is presumed to be related to the individual's adaptive functioning (Kanner et al., 1981). If endorsed, items for both scales were rated in severity from Somewhat Severe (1) to Very Severe (3). Two different scores can be derived from these self-ratings: Frequency (number of items endorsed)

and intensity (cumulated severity divided by frequency). For the purposes of the present study, only the frequency score from the hassles items was used (higher scores reflect greater levels of daily hassles stress). Each parent independently completed this questionnaire at Wave 1 and Wave 2. Test-retest correlations are high for frequency scores (e.g., hassles .79; Kanner et al., 1981). The internal consistencies for the frequency scores of the present sample were high for both Wave 1 (coefficient alpha = .93) and Wave 2 (coefficient alpha = .93) data.

The Coddington Family Events Questionnaire (Coddington, 1972) measured stressful child life events. The 32-item self-report Family Events Questionnaire was completed by the mother of each family at both Wave 1 and Wave 2. This questionnaire inquires about child and family life events that occurred during the 6 month and 12 month periods prior to assessment. The events were endorsed (1=Occurred, 0=Did Not Occur) and their impact was assessed by the mother as either positive or negative. For the purposes of the present study, only the frequency of items (number of items endorsed) was used to measure child events stress. Internal consistency for the present sample was low for both Wave 1 (coefficient alpha = .46) and Wave 2 (coefficient alpha = .47) data. Low internal consistency is likely due to the nature of the items that comprises this questionnaire. The list of stressors presented are not necessarily related to one another in such a way that the

occurrence of one increases the likelihood that the others will also occur, therefore, inter-item correlations are expected to be low. For example, mothers who endorsed stressors such as; "child's mother began work" were not, as a result, more likely to endorse "child's pet died within past year," or any of the other items. This measure is hereafter referred to as the Child Life Stress (CLS) Index.

The Family Crisis List was used to assess the extent of parental life events stress (Patterson, 1982). The Family Crisis List is a 70-item self-report questionnaire that was completed by each of the parents at both Wave 1 and Wave 2. This questionnaire was developed at the Oregon Social Learning Center as a measure of family-related stressors. (Patterson, 1982), and is divided into nine areas of stress: Family; household and transportation; economics; health; school; social interchange; and legal. A score of one was given to each item that was endorsed. The sum of items endorsed, therefore, reflected the amount of life events stress perceived by each parent. For purposes of the present study only select items pertaining to parental life events stress, and not to daily stress, were used. These items were chosen through a series of factor analyses. Three separate factor analyses were conducted to identify a common factor that measured life events stress. Initially, a 2-factor Common Factor Analysis (CFA) using a maximum likelihood extraction was performed on all 70 items of the Family Crisis List. An oblique rotation, which allows the

factors to correlate, was used to transform the solution to simple structure and to ease interpretation of the results. The analysis converged in 16 iterations and the two factors accounted for 11.3% of the shared variance. Twelve items loaded on the first factor (life events stress), which accounted for 7% of the variance, and 19 items loaded on the second factor (daily hassles stress), which accounted for 4.3% of the variance (see Appendix A for factors and factor loadings). However, since a large number of items did not load on either factor (i.e., had a factor loading less than .19), it was determined that a three factor solution best represented the data.

Results of the 3-factor solution using the maximum likelihood estimation and an oblique rotation converged in 16 iterations and accounted for 15.3% of the shared variance. Ten items loaded on the first factor (life events stress), 23 items loaded on the second factor (daily hassles stress), and 13 items loaded on the third factor (child school stress). The first factor accounted for 7% of the variance, the second factor accounted for 4.3% of the variance and the third factor accounted for 4.0% of the variance (see Appendix B for factors and factor loadings).

The last CFA was performed on 24 items that were chosen a priori by the researcher and represented either life events stress (factor 1) or daily hassles stress (factor 2). The analysis consisted of a 2-factor solution with the same estimation procedure and rotation used above. The CFA

converged in 6 iterations and the 2 factors that were extracted accounted for 17.1% of the shared variance. Five items loaded on the first factor (life events), accounting for 9.6% of the variance, and seven items loaded on the second factor (hassles), accounting for 7.5% of the variance (see Appendix C for factors and factor loadings).

Results from all three analyses were then compared and decisions were made regarding items to retain for the parental life events stress factor. The decisions were based upon a comparison of the 3 separate CFAs. Those items that loaded on the life events factor for each of the three separate analyses were retained. In addition, if an item loaded highly on the life events factor for at least one, but not all, of the CFA solutions the content of the item was examined. If, based on "expert opinion", it represented a life event stress, defined as a major event infrequent in occurrence, that item was retained. These steps resulted in an 11-item factor representing parental life events stress (see Table 1 for final items). These analyses were performed only on the Wave 1 Family Crisis List items, but were used to create an identical factor at Wave 2. Two factors with low but adequate internal consistency resulted from this process; one for Wave 1 (coefficient alpha = .64), and one for Wave 2 (coefficient alpha = .58). Just as for the Child Life Stress Index, the resulting low internal consistencies were not surprising. The list of stressors presented are not necessarily interdependent, therefore,

Table 1

Parental Life Stress: (11-Item Factor)

Item
1. Went to apply for welfare or unemployment funds.
2. Welfare or unemployment payments began.
3. Welfare or unemployment stopped payment.
4. Family member was arrested.
5. Didn't have enough money to pay bills.
6. Family member appeared in court.
7. Got evicted.
8. Moved.
9. Conflict with ex-spouse.
10. Policeman came to the door.
11. Something stolen from house.

Note. Items numbered arbitrarily; all items derived from the Family Crisis List (Patterson, 1982).

inter-item correlations are low. This measure is hereafter referred to as the Parent Life Stress (PLS) Index.

Parental lifetime alcohol use. The Lifetime Alcohol Problems Score (LAPS; Zucker, 1991) was the primary alcohol involvement variable used in the present analyses. The score was designed to assess differences in the extent of drinking problems over the life course, and was derived from information gained from the administration of the Drinking and Drug History Interview (Zucker, Fitzgerald, & Noll, 1990), the DIS (Robins et al., 1980), and the short form of the Michigan Alcoholism Screening Test (Selzer, 1971, 1975). The LAPS provides a composite score derived from three component subscores: (a) the primacy component, involving the squared inverse of the age at which the respondent reported first drinking enough to get drunk; (b) the variety component, involving the number of areas in which drinking problems were reported; and (c) the life percent component, involving a measure of the interval between the most recent and the earliest drinking problems, corrected for current age. Higher scores on LAPS reflect more problems related to drinking. Scores were standardized separately for males and females within the project sample; e.g., a female score identical to a male score indicates that the female has fewer problems relative to the male. This measure is unrelated to current drinking consumption in problem drinking samples and has been shown to be a valid indicator of differences in long-term severity of drinking difficulty

in a wide variety of areas (Zucker, 1991). This lifetime measure of alcohol problems was calculated only at Wave 1, but for both mothers and fathers.

Parental antisociality. The Antisocial Behavior Checklist (ASB; Zucker & Noll, 1980) is a 46-item revision of an earlier antisocial behavior inventory used in the Rutgers Community Study (Zucker & Barron, 1973) that has been modified so that items are salient for both adult and adolescent antisocial activities. The ASB measures the frequency of the parent's participation in a variety of aggressive and antisocial activities both in adolescence and adulthood. The scores for each item range from Never (0) to Often (3). Higher scores on the ASB reflected more antisocial behavior.

A series of reliability and validity studies on populations ranging from male and female college students to male and female prison inmates has shown that the ASB has adequate test-retest reliability (.91 over 4 weeks) and internal consistency (coefficient alpha = .93) (Zucker & Noll, 1980). The ASB also differentiates among groups with major histories of antisocial behavior (e.g., inmates) versus individuals with minor offenses in district court versus university students (Zucker & Noll, 1980), and between alcoholic and nonalcoholic adult males (Ham, Zucker, & Fitzgerald, 1993). The ASB was completed by both parents; however, only Wave 1 ASB scores were used in the present study. Internal consistency of the ASB for the present

sample was high (Wave 1 coefficient alpha = .88).

Alcoholic subtype. Only Fathers' scores on the Antisocial Behavior Checklist were used to classify families as Antisocial Alcoholics (AALs) or Non-Antisocial Alcoholics (NAALs). First, fathers' scores on the ASB were summed over both childhood and adulthood domains. By using both childhood and adulthood antisocial behavior to determine alcoholic subtype of fathers, the classification scheme insures that high-scoring subjects have established a developmental trajectory which begins early in life with aggressive/antisocial behavior and crystallizes in alcoholism and sociopathy during adulthood, rather than simply providing a dimensional classification based upon adult functioning (Ellis, 1992; Zucker, 1987; Zucker et al., 1994). Thus, the life history for high-scoring subjects (AALs) involves a pattern of sustained antisociality rather than one that is potentially more epiphenomenal (Zucker, 1987).

A score of 24 on the ASB was used as a cutoff, with those fathers scoring below 24 classified as NAALs and those scoring 24 or above classified as AALs. This particular cutoff score was chosen by computing its sensitivity and specificity when DSM-III-R diagnosis of adult antisocial personality disorder was used as a standard. According to Ellis (1992) the sensitivity of the ASB when 24 was used as a cutoff was .85, and its specificity was .83; by comparison, cutoff scores of 21 and 27 yielded sensitivity

and specificity scores of .94 and .75 and .79, and .87, respectively. Thus, establishing AAL/NAAL status using a score of 24 on the ASB was judged to provide the best combination of sensitivity and specificity, as well as providing a classification that approximated a DSM-III-R antisocial personality diagnosis (Ellis, 1992).

Decoupling. Information concerning the intactness of each family was obtained from selected items of the Marital Status Questionnaire, an instrument developed by the MSU-UM Longitudinal Study. This questionnaire was administered for the first time at the first session of each Wave and for a second time at the last session of each Wave. Parents indicated their marital status (e.g., married, separated, divorced), as well as their living situation (living with original partner and child, living with child but not with child's biological parent etc.). For the purposes of this study, only the data gathered by the questionnaires administered at the beginning (first questionnaire completed by each parent) of each of the two Waves were used. As indicated by the inclusion criteria, all families at the beginning of Wave 1 were intact. Therefore, Wave 2 information was used to complete the decoupling variable. The decoupling variable was dichotomous with a score of one indicating that the family was intact (parents were coupled) living with the biological target child. A score of two indicated that the family was not intact (i.e., only one parent was living with the target child by Wave 2, while the

other parent was living elsewhere due either to a separation of choice such as a divorce, or a forced separation such as an incarceration).

Child Outcome Measure

Child behavior problems. The Child Behavior Checklist (CBCL; Achenbach & Edelbrock, 1983) was used to assess child behavior problems. This instrument provides an objective assessment of the target child's social and emotional functioning. The CBCL has been normed on children 4 to 16 years of age and yields standardized scores on social competency, two broad-band subscales concerning externalizing and internalizing behavior, and eight narrow-band subscales (social withdrawal, depressed, immature, somatic complaints, sex problems, schizoid, aggressive, and delinquent). For purposes of the present study, only the total child behavior problems raw score was used.

The total child behavior problems score is a sum of the 118 items that are rated by each of the parents on a scale ranging from Not True for my child (0) to Very True for my child (2). Higher scores reflected more total child behavior problems. The CBCL was administered to both mothers and fathers at both Wave 1 and Wave 2. For this sample internal consistency of the total child behavior problems score was high, both at Wave 1 (coefficient alpha = .91) and Wave 2 (coefficient alpha = .99).

Missing Data Estimation

The original data set for the present analyses consisted of 485 parents and their children. Of the 485 individuals, 22 parents (9 mothers and 13 fathers) were missing five or more of the ten instruments, and 46 parents (23 mothers, 24 fathers) were missing all Wave 2 measures used in the present study; therefore, these subjects were not included in the sample for the present research.

Bias analyses, conducted on the data collected from the remaining 416 individuals, indicated that participants missing one or more data points were not significantly different from those with complete data. However, the analyses revealed differences between mothers and fathers, and for parents based on their risk status (AAL, NAAL, Control), suggesting that data estimation should be conducted separately for these six groups.

When the 416 individuals were examined by Risk, a large proportion of AALs were missing at least one data point compared to NAALs and Controls. Unequal sample sizes threaten both external validity, and the power of a test to detect real differences (Cohen, 1988); therefore, the missing data were estimated prior to substantive hypothesis testing.

Data imputation was completed separately for mothers and fathers in each of the risk groups (i.e., control mothers, control fathers, NAAL mothers, NAAL fathers, AAL mothers, AAL fathers). For the purposes of this study only

missing scale (instrument) scores, rather than individual items, were imputed.

Scale scores were estimated using two different procedures. A longitudinal data estimation procedure developed by Petersen (1987; see Bingham, 1993; Bingham & Crockett, in press) was used to estimate the missing scale scores for instruments that were administered at both Wave 1 and Wave 2. For those instruments that were only administered at Wave 1, or for individuals missing both Wave 1 and Wave 2 scores of the same instrument cross-sectional mean substitution was used.

Longitudinal Data Estimation

A longitudinal data estimation procedure (Petersen, 1987) was used to estimate two hundred and seventy-one data points out of a possible 3328 data points (8.1% of the total). This estimation procedure was used only in cases where subjects were missing data at one wave, but not at the other.

This estimation procedure utilized two components; the nomothetic component and the ideographic component. The nomothetic component consisted of the scale score means of each group (i.e., AALs, NAALs, or Controls) at each wave of data collection. The ideographic component is generally the average distance, in units of standard deviation, between the subjects' data points at the waves where data are not missing and the nomothetic component at the wave with missing data (Bingham & Crockett, in press). However, in

the present study, only two waves of data were collected. Thus, the ideographic component consisted of the distance, in standard deviation units, between the subject's scale score at one wave (i.e., the wave with non-missing data points) and the nomothetic component at that wave.

First, the nomothetic component of each variable (calculated using non-missing data) was computed for each wave and each of the six subgroups. Next, an SPSS program was written to compute the missing data. A deviation score was computed for each case at each of the two waves by subtracting each individual's score from the subgroup mean for each of the two Waves. For example, the deviations from the mean for Variable X were calculated as follows:

```
DX1 = MX1 - X1.
DX2 = MX2 - X2.
```

DX1 represents the deviation score for the Wave 1 variable, whereas MX1 represents the subgroup mean for variable X at Wave 1, and X1 represents the Wave 1 score for variable X. Since one of the data points was missing, only one of these deviation scores was computed (i.e., either DX1 or DX2).

Therefore, only the one deviation score was used to compute the deviation (across Wave 1 and Wave 2) from the mean of variable X.

For example:

```
DX = DX1.
     or
DX = DX2.
```

This deviation score was then used to compute the estimated data as follows:

ED1 = MX1 - DX

The missing data point was estimated by subtracting the subgroup mean score of X from the deviation score. If the scale score was not missing, the original score was retained for that instrument (Bingham, 1993).

Cross-sectional Data Estimation

Following the longitudinal data estimation, the entire sample of data (estimated and original) was examined for scale scores that remained missing. Twenty-one data points out of a possible 3328 data points (.6% of the total) were still missing. These data points were missing either because (a) both Wave 1 and Wave 2 data of the same variable were missing for the same case, or (b) because the instrument was only collected at Wave 1, and, therefore, the data point could not be estimated longitudinally. Twenty missing data points were estimated using a mean substitution method. Of these missing data points four were lifetime alcohol problems scores, 2 were Wave 1 parent life stress scores, 2 were Wave 2 PLSs, 3 were Wave 1 daily hassles stress scores (Hassles), 3 were Wave 2 Hassles, 3 were Wave 1 CBCLs, and 3 were Wave 2 CBCLs. Means were computed for each of the Risk (AAL, NAAL, Control) X Parent (mother, father) subgroups and substituted for the missing data.

The remaining missing data point (ASB which measures antisociality) was estimated by using selected items from

the DIS (Robins et al., 1980). Questions 196 - 209 of the DIS measures antisocial characteristics analogous to those of the missing ASB instrument.

Bias in Estimation

Upon completion of data estimation, analyses were conducted in order to ensure that data estimation had not biased the sample. For each of the two waves, a two-group, stacked model design was tested using LISREL 8 (Jöreskog & Sörbom, 1993). One group consisted of the original data set (with missing data points), while the other group consisted of estimated data combined with the original data set. The first two moments (covariance and means) were estimated and all parameter estimates for both groups were constrained to be invariant.

The results revealed a Goodness of Fit Index of .99 and a non-significant Chi-Square [$X^2(10, N = 416) = 1.48$] for Wave 1 data. For Wave 2, although the Chi-Square was significant [$X^2(10, N = 416) = 24.74$], the GFI was .99. These results suggested that the data estimation procedures did not significantly alter the structure of the data for either of the two Waves.

Analytic Design

Following data estimation, the bivariate relationships among all study variables were examined using bivariate correlational analyses. Singly multivariate repeated measures analysis of variance (RMANOVA) and doubly multivariate analysis of variance (DMANOVA) were used to

examine Risk (AAL, NAAL, Control) and Parent (mother, father) differences in the longitudinal outcomes of family stress and child behavior problems. Analysis of variance (ANOVA) was used to examine Risk and Decoupling (Decoupled, Coupled) differences in Wave 2 child behavior problems. Singly multivariate analysis of variance (MANOVA) was used to examine Risk and Decoupling differences in Wave 2 family stress. Post-hoc comparisons were conducted using Student-Newman-Keuls Tests (SNKT) as follow-ups to significant Risk main effects. Finally, Chi-Square tests of independence were used to test decoupling differences between the Risk groups.

In order to test the differential strength of prediction of alcohol-specific and nonalcohol-specific effects on child behavior problems, hierarchical regression analyses were performed. The alcohol-specific factor of LAPS was entered into the first stage of the model alone, whereas, the nonalcohol-specific factors of child life stress, parent life stress and daily hassles stress were entered into the second stage of the model. In the last stage, both the nonalcohol-specific and alcohol-specific factors were entered simultaneously. It was expected that both alcohol-specific and nonalcohol-specific factors would predict child behavior problems when entered into the model separately. However, when entered into the model simultaneously, stress, the nonalcohol-specific factor would be a stronger predictor of child behavior problems in that

it would significantly predict behavior problems, whereas, LAPS would no longer be a significant predictor. Lastly, structural equation modeling was used to test three competing models of the longitudinal relationship between all study variables. Strength of prediction was assessed analogously in the structural equation models.

Results

Based on the view that AAL, NAAL, and Control families constitute discrete groups (Ellis, 1992; Zucker et al., 1994), many of the following analyses were conducted for these groups separately. Group membership (AAL, NAAL, or Control) was partially defined by paternal antisociality and lifetime alcohol problems scores; however, maternal scores for ASB and LAPS were not considered in this classification process. Therefore, the degree to which this classification process applies to mothers' ASB and LAPS was tested in this study. Furthermore, the differences between AAL and NAAL fathers on LAPS was also examined. Appendix D contains the results of two analyses conducted on maternal LAPS and ASB and paternal LAPS.

Background Characteristics

A summary of background information (parent age, child age, parent years of education) for the present sample is presented in Table 2. The sample size varies for years of parental education due to missing data. One-way ANOVAs were conducted on each of the dependent variables of mother age, mother years of education, father age, father years of education and child age. The results revealed significant group effects on mother education and father education (see Table 2 for *F*-tests).

Post-hoc analyses (SNKT) revealed that Control mothers had significantly more years of education than did AAL mothers. For fathers in the present sample, the post-hocs

Table 2

Age in Years and Total Years of Education of Current Sample

	Risk Group						
	AAL		NAAL		Control		
	n	M(SD)	n	M(SD)	n	M(SD)	F
Mothers							
Age	43	29.9(4.7)	82	31.5(3.8)	84	31.2(3.9)	2.22
Education	41	12.6(1.7)	81	13.5(2.1)	84	13.6(1.8)	4.21* [a]
Fathers							
Age	42	33.0(6.3)	81	33.3(4.9)	84	32.6(4.6)	0.38
Education	41	12.7(2.2)	80	13.8(2.3)	84	14.6(2.1)	9.91** [ab]
Children							
Age	43	4.3(0.9)	82	4.2(1.9)	84	4.3(0.9)	0.22

*p<.05; **p<.01.

[a] AALs < Controls, Student-Newman-Keuls Test
[b] NAALs < Controls, Student-Newman-Keuls Test

indicated that Controls reported significantly more years of education than NAALs and AALs, however, no differences were observed between AAL and NAAL fathers.

Bivariate Correlational Analyses

Bivariate correlational analyses were conducted between all measures and child behavior problems at both Waves of data collection. Six separate sets of correlations were run, one for each parent in each risk group (see Tables 3 - 8). The patterns of association among the variables varied widely across the six groups. Due to the fact that six different correlational analyses were conducted; and as the number of tests increases, the chances of committing a Type I error increases, a Bonferroni correction was applied to the correlations. The Bonferroni critical value was calculated to equal .008. For the purposes of the present study, only statistically significant bivariate relationships ($p<.008$) will be discussed.

Relationship Among Parental-Reported Variables and Child Outcome for AAL Families

Results for the AAL mother group indicated that none of the study variables were significantly correlated with child behavior problems at either wave. This result was also true for fathers; none of the parental-reported variables were significantly correlated with child behavior problems. However, the bivariate correlations revealed that for both AAL mothers and AAL fathers, Wave 1 CBCL was positively

Table 3

Correlations Among Maternal ASB, LAPS, PLS, Hassles, CLS, and CBCL for AAL Mothers (n=43)

	ASB	LAPS	PLS1	PLS2	HASSLE1	HASSLE2	CLS1	CLS2	CBCL1	CBCL2
ASB	---	.45**	.08	.30	.14	.30*	-.02	-.01	-.10	-.17
LAPS		----	.19	.36*	.17	.30*	-.07	.26	.08	-.07
PLS1			----	.43**	.06	.09	.45**	.26	.17	.12
PLS2				----	.20	.30	.10	.31*	.19	.29
HASSLE1					----	.48**	.07	.15	.16	.15
HASSLE2						----	.19	.14	.10	.16
CLS1							----	.47**	.43**	.34*
CLS2								----	.47**	.41**
CBCL1									----	.72***
CBCL2										----

*p<.05; **p<.01; ***p<008.

Note. Bonferroni critical value = .008.

ASB = Antisociality
LAPS = Lifetime Alcohol Problems
PLS1 = Wave 1 Parent Life Stress
PLS2 = Wave 2 Parent Life Stress
HASSLE1 = Wave 1 Daily Hassles Stress
HASSLE2 = Wave 2 Daily Hassles Stress
CLS1 = Wave 1 Child Life Stress
CLS2 = Wave 2 Child Life Stress
CBCL1 = Wave 1 Total Child Behavior Problems
CBCL2 = Wave 2 Total Child Behavior Problems

Table 4

Correlations Among Maternal ASB, LAPS, PLS, Hassles, CLS, and CBCL for NAAL Mothers (n=82)

	ASB	LAPS	PLS1	PLS2	HASSLE1	HASSLE2	CLS1	CLS2	CBCL1	CBCL2
ASB	----	.56***	.40***	.19	.27*	.25*	.22*	.21	.56***	.44***
LAPS		----	.34**	.23*	.30**	.27*	.35***	.18	.39***	.34**
PLS1			----	.54***	.39***	.35***	.30**	.35***	.25*	.30**
PLS2				----	.26*	.25*	.23*	.39***	.09	.12
HASSLE1					----	.58***	.28*	.39***	.27*	.24*
HASSLE2						----	.34**	.43***	.30**	.40***
CLS1							----	.59***	.18	.27*
CLS2								----	.04	.19
CBCL1									----	.63***
CBCL2										----

*p<.05; **p<.01; ***p<008.

Note. Bonferroni critical value = .008.

ASB = Antisociality
LAPS = Lifetime Alcohol Problems
PLS1 = Wave 1 Parent Life Stress
PLS2 = Wave 2 Parent Life Stress
HASSLE1 = Wave 1 Daily Hassles Stress
HASSLE2 = Wave 2 Daily Hassles Stress
CLS1 = Wave 1 Child Life Stress
CLS2 = Wave 2 Child Life Stress
CBCL1 = Wave 1 Total Child Behavior Problems
CBCL2 = Wave 2 Total Child Behavior Problems

Table 5

Correlations Among Maternal ASB, LAPS, PLS, Hassles, CLS, and CBCL for Control Mothers (n=84)

	ASB	LAPS	PLS1	PLS2	HASSLE1	HASSLE2	CLS1	CLS2	CBCL1	CBCL2
ASB	----	.32**	.21	.21	.26*	.25*	.14	.30**	.35***	.15
LAPS		----	.13	-.08	.27*	.24*	.01	.09	.03	.02
PLS1			----	.30**	.15	.10	.30**	.33**	.27*	.14
PLS2				----	.23*	.26*	.17	.38***	.22*	.14
HASSLE1					----	.81***	.13	.23*	.28*	.21
HASSLE2						----	.09	.22*	.22*	.09
CLS1							----	.48***	.16	.15
CLS2								----	.34**	.29***
CBCL1									----	.47***
CBCL2										----

*p<.05; **p<.01; ***p<008.

Note. Bonferroni critical value = .008.

ASB = Antisociality
LAPS = Lifetime Alcohol Problems
PLS1 = Wave 1 Parent Life Stress
PLS2 = Wave 2 Parent Life Stress
HASSLE1 = Wave 1 Daily Hassles Stress
HASSLE2 = Wave 2 Daily Hassles Stress
CLS1 = Wave 1 Child Life Stress
CLS2 = Wave 2 Child Life Stress
CBCL1 = Wave 1 Total Child Behavior Problems
CBCL2 = Wave 2 Total Child Behavior Problems

Table 6

Correlations Among Paternal ASB, LAPS, PLS, Hassles, CLS, and CBCL for AAL Fathers (n=42)

	ASB	LAPS	PLS1	PLS2	HASSLE1	HASSLE2	CLS1	CLS2	CBCL1	CBCL2
ASB	----	.44**	.00	-.09	.09	.10	.02	.05	.12	-.35*
LAPS		----	-.11	-.05	.18	.24	.05	-.13	.23	-.03
PLS1			----	.43**	.32*	.31*	.47**	.21	.09	.07
PLS2				----	.10	.12	.26	.25	.03	.11
HASSLE1					----	.86***	.43**	.34*	.30	.28
HASSLE2						----	.53***	.22	.16	.17
CLS1							----	.47**	-.10	.02
CLS2								----	.20	.04
CBCL1									----	.60***
CBCL2										----

*p<.05; **p<.01; ***p<008.

Note. Bonferroni critical value = .008.

ASB = Antisociality
LAPS = Lifetime Alcohol Problems
PLS1 = Wave 1 Parent Life Stress
PLS2 = Wave 2 Parent Life Stress
HASSLE1 = Wave 1 Daily Hassles Stress
HASSLE2 = Wave 2 Daily Hassles Stress
CLS1 = Wave 1 Child Life Stress
CLS2 = Wave 2 Child Life Stress
CBCL1 = Wave 1 Total Child Behavior Problems
CBCL2 = Wave 2 Total Child Behavior Problems

Table 7

Correlations Among Paternal ASB, LAPS, PLS, Hassles, CLS and CBCL for NAAL Fathers (n=81)

	ASB	LAPS	PLS1	PLS2	HASSLE1	HASSLE2	CLS1	CLS2	CBCL1	CBCL2
ASB	----	.40***	.22	.22*	.09	.15	.21	.14	.31**	.25*
LAPS		----	.18	.10	.30**	.18	.18	.06	.24*	.42***
PLS1			----	.64***	.32**	.21	.45***	.37***	.06	.03
PLS2				----	.22*	.36***	.32**	.36***	.08	.03
HASSLE1					----	.52***	.22*	.13	.27*	.26*
HASSLE2						----	.16	.27*	.27*	.31**
CLS1							----	.62***	.46***	.37***
CLS2								----	.19	.20
CBCL1									----	.72***
CBCL2										----

*p<.05; **p<.01; ***p<008.

Note. Bonferroni critical value = .008.

ASB = Antisociality
LAPS = Lifetime Alcohol Problems
PLS1 = Wave 1 Parent Life Stress
PLS2 = Wave 2 Parent Life Stress
HASSLE1 = Wave 1 Daily Hassles Stress
HASSLE2 = Wave 2 Daily Hassles Stress
CLS1 = Wave 1 Child Life Stress
CLS2 = Wave 2 Child Life Stress
CBCL1 = Wave 1 Total Child Behavior Problems
CBCL2 = Wave 2 Total Child Behavior Problems

Table 8

Correlations Among Paternal ASB, LAPS, PLS, Hassles, CLS, and CBCL for Control Fathers (n=84)

	ASB	LAPS	PLS1	PLS2	HASSLE1	HASSLE2	CLS1	CLS2	CBCL1	CBCL2
ASB	---	.45**	.10	.08	.33**	.39***	.04	.24*	.21	.23*
LAPS		----	.02	.02	.28***	.17	.14	.16	.26*	.14
PLS1			----	.48***	.26*	.16	.22*	.31**	.04	.01
PLS2				----	.21	.17	.28**	.30**	.08	.07
HASSLE1					----	.61***	.16	.19	.50***	.48***
HASSLE2						----	.04	.12	.31**	.25*
CLS1							----	.48***	.11	.09
CLS2								----	-.02	-.07
CBCL1									----	.72***
CBCL2										----

*p<.05; **p<.01; ***p<008.

Note. Bonferroni critical value = .008.

ASB = Antisociality
LAPS = Lifetime Alcohol Problems
PLS1 = Wave 1 Parent Life Stress
PLS2 = Wave 2 Parent Life Stress
HASSLE1 = Wave 1 Daily Hassles Stress
HASSLE2 = Wave 2 Daily Hassles Stress
CLS1 = Wave 1 Child Life Stress
CLS2 = Wave 2 Child Life Stress
CBCL1 = Wave 1 Total Child Behavior Problems
CBCL2 = Wave 2 Total Child Behavior Problems

correlated with Wave 2 CBCL.

Relationship Among Parental-Reported Variables and Child Outcome for NAAL Families

For NAAL mothers, the results revealed that ASB and LAPS were positively correlated with CBCL1, while ASB and HASSLE2 were positively related to CBCL2. For NAAL fathers, child life stress was positively correlated with CBCL1. In addition, CLS and LAPS were positively related to CBCL2.

Relationship Among Parental-Reported Variables and Child Outcome for Control Families

Only antisociality was positively correlated with CBCL1 for Control mothers, and the only variable significantly correlated with CBCL2 was child life stress at Wave 2. The results for Control fathers revealed two significant bivariate correlations, one between Wave 1 Hassles and Wave 1 CBCL, and the other between Wave 2 Hassles and CBCL2.

In summary, results from the correlational analyses revealed different patterns of significant bivariate correlations for mothers and fathers. Antisocial alcoholics, NAALs, and Controls also differed in their patterns of significant bivariate correlations. For example, there are more significant relationships among the study variables for NAAL parents than for any other group.

Analyses of Variance

Means and standard deviations for all dependent variables are presented in Table 9 for mothers and Table 10 for fathers. Significance for all multivariate tests was

Table 9

Differences Between AALs, NAALs, and Controls on Maternal-Reported Stress, Child Stress and Maternal-Reported Child Outcome

	Risk Group			
	M(SD) (n=43)	M(SD) (n=82)	M(SD) (n=84)	F
Wave 1 Maternal Variables				
Life Stress	1.9(1.8)	1.0(1.2)	0.7(1.0)	30.52*** [abc]
Daily Hassles	21.6(12.4)	19.4(11.6)	20.8(13.5)	2.39
Wave 1 Child Variables				
Life Stress	6.4(2.6)	5.2(3.1)	3.8(2.5)	28.82*** [abc]
Behavior Prob	35.3(13.8)	28.5(15.7)	26.3(12.7)	15.04*** [abc]
Wave 2 Maternal Variables				
Life Stress	1.6(1.6)	1.3(1.6)	0.6(0.9)	21.69*** [abc]
Daily Hassles	18.8(9.7)	17.2(10.6)	17.3(11.6)	0.83
Wave 2 Child Variables				
Life Stress	4.1(2.5)	4.4(2.6)	3.6(2.1)	4.24* [b]
Behavior Prob	30.2(15.7)	26.5(13.4)	26.3(16.5)	.10

Note. F-tests for between-subjects Risk main effect across parent; see text for multivariate analyses and within-subjects effects.

*p<.05; **p<.01; p<.001.

[a] AALs > NAALs, Student-Newman-Keuls Test
[b] NAALs > Controls, Student-Newman-Keuls Test
[c] AALs > Controls, Student-Newman-Keuls Test

Table 10

Differences Between AALs, NAALs, and Controls on Paternal-Reported Stress and Paternal-Reported Child Outcome

	Risk Group			
	M(SD) (n=42)	M(SD) (n=81)	M(SD) (n=84)	F
Wave 1 Paternal Variables				
Life Stress	2.3(2.1)	1.2(1.6)	0.7(1.0)	30.52*** [abc]
Daily Hassles	22.5(13.6)	18.0(8.5)	17.8(11.4)	2.39
Wave 1 Child Variable				
Behavior Prob	36.3(17.1)	29.0(13.7)	24.3(14.0)	15.04*** [abc]
Wave 2 Parental Variables				
Life Stress	2.0(1.7)	1.0(1.4)	0.6(0.9)	21.69*** [abc]
Daily Hassles	19.0(13.2)	18.1(12.6)	16.2(10.3)	0.83
Wave 2 Child Variable				
Behavior Prob	27.0(13.1)	25.0(13.6)	22.4(16.2)	.10

Note. F-tests for between-subjects Risk main effect across parent; see text for multivariate analyses and within-subjects effects.

*p<.05; **p<.01; p<.001.

[a] AALs > NAALs, Student-Newman-Keuls Test
[b] NAALs > Controls, Student-Newman-Keuls Test
[c] AALs > Controls, Student-Newman-Keuls Test

determined using Wilks Lambda. Further, as a follow-up to significant Risk main effects, post hoc comparisons were conducted using the SNKT.

Family Stress

Initially, a 2 (Parent) X 3 (Risk) DMANOVA design was used to examine overall between-subjects group main effects and interactions in daily hassles stress and parental life stress (Wave 1 and Wave 2). A RMANOVA was used to test the between-subjects group main effect of Risk in child life stress at Wave 1 and Wave 2. Lastly, a 2 X 3 DMANOVA and a 2 X 3 RMANOVA were used to test within-subjects group main effects and interactions in stress over time.

Overall parental stress. A 2 (mother, father) X 3 (AAL, NAAL, Control) DMANOVA was used to examine overall group main effects of Risk and Parent and their interactions on daily stress and parental life stress repeated over both Wave 1 and Wave 2. The results revealed one significant between-subjects main effect of Risk [$F(4,818) = 2.73$, $p<.05$). The between subjects multivariate analysis of variance (MANOVA) for daily stress and parental life stress, at both Wave 1 and Wave 2, also revealed a single significant main effect for Risk [$F(8,814) = 9.26$, $p<.001$]. The univariate analysis of variance (ANOVA) showed that only the Risk main effects for Wave 1 parental life stress, [$F(2,410) = 30.52$, $p<.001$], and Wave 2 parental life stress [$F(2, 410) = 21.84$] were significant. Post hoc analyses for parental life stress at both Wave 1 and Wave 2 revealed that

stress levels for all three groups were significantly different from each other. Antisocial alcoholic parents reported the most life stress, followed by NAALs, followed by Controls. These results partially supported hypotheses 1 - 1.2 which proposed that AALs would report the most daily stress and parental life stress, followed by NAALs, followed by Controls.

Parental stress and time. Results of the 2 (mother, father) X 3 (AAL, NAAL, Control) within-subjects DMANOVA for daily stress and parental life stress revealed a single significant main effect of Time [$F(2,409) = 564.73$, $p<.001$]. The 2 X 3 RMANOVA for parent life stress revealed no significant within-subjects interactions or main effects of Risk, Parent, or Time. However, the 2 X 3 RMANOVA for daily hassles stress revealed a significant within-subjects main effect of Time [$F(1,410) = 21.75$, $p<.001$]. Parents reported significantly more daily hassles stress at Wave 1 than at Wave 2. These analyses were performed to test the hypothesis (1.3) that AALs would report more stress across time than NAALs, who would report more stress than Controls. This hypothesis was not supported.

Child life stress. The following analyses also tested hypotheses 1 - 1.3. However, only mothers completed the child life stress index, therefore, only the Risk main effect was included in analyses.

The RMANOVA, which tested hypothesis 1, revealed a significant main effect of Risk [$F(2,413) = 16.91$, $p<.001$].

The between-subjects MANOVA also revealed a single significant main effect of Risk [$F(4,818) = 16.88$, $p<.001$]. The main effects of both Wave 1 child life stress [$F(2,410) = 28.82$, $p<.001$] and Wave 2 child life stress [$F(2,410) = 4.24$, $p<.05$] were significant. Post-hoc comparisons revealed that for Wave 1 CLS all three groups differed significantly from each other, with mothers in the AAL group reporting the greatest amount of child life stress, followed by mothers in the NAAL group, followed by Control-group mothers. This result supported hypothesis 1.1 that AALs would report more stress at Wave 1 than NAALs, who would report more stress than Controls. Post-hocs conducted on Wave 2 CLS revealed that NAALs scored significantly higher than Controls. No differences were revealed between Controls and AALs, nor NAALs and AALs. These results partially supported hypothesis 1.2, which predicted that AALs would report the most Wave 2 stress, followed by NAALs, followed by Controls.

Child life stress and time. The within-subjects RMANOVA, performed to test hypothesis 1.3, which posited that AALs would report the most stress followed by NAALs, followed by Controls over both waves of data collection, resulted in a significant Risk X Time interaction [$F(2,413) = 22.44$, $p<.001$] as well as a significant Time main effect [$F(1,413) = 69.75$, $p<.001$]. Child life stress levels were significantly higher at Wave 1 than they were at Wave 2. Although differences were apparent between the Risk groups

at Wave 1 (in the expected direction), these differences decreased at Wave 2 and resulted in NAALs reporting more family events stress than both the AALs and Controls. Hypothesis 1.3 was partially supported by these results. Overall, the results of the analyses performed on stress supported hypotheses 1 - 1.3. Differences were apparent between the three Risk groups and in the hypothesized direction for parent life stress and Wave 1 child life stress. However, no significant differences were reported between these three groups for daily hassles stress, and at Wave 2 only NAALs reported significantly more child life stress than Controls. Lastly, the results revealed that daily hassles stress levels decreased from Wave 1 to Wave 2.

Decoupling

A 2 (coupled, decoupled) X 3 (AAL, NAAL, Control) Chi-Square analysis was conducted to test hypothesis 2, which proposed that AAL families would report the most decouplings at Wave 2, followed by NAALs, followed by Controls. The results revealed a significant Chi-Square [Pearson $X^2(2, N = 207) = 6.60, p<.05$], indicating that the frequency of observations in each of the six cells was not equal (see Table 11 for column and row percentages).

Odds ratios were computed as follow-ups to the significant Chi-Square Tests and to determine which groups differed. The first odds ratio between NAALs and Controls, revealed that NAAL families were 3.8 times more likely than Control families to be divorced. The second odds ratio

Table 11

Frequency of Decoupling/Coupling for AAL, NAAL, and Control Families

	Risk Group		
Couple Status	AAL	NAAL	Control
Coupled			
n	35	71	81
Column %	83.3	87.7	96.4
Row %	18.7	38.0	43.3
Decoupled			
n	7	10	3
Column %	16.7	12.3	3.6
Row %	35.0	50.0	15.0

between AALs and NAALs, revealed that AALs were 1.4 times more likely than NAALs to be divorced. The last odds ratio between AALs and Controls, revealed that AALs were 5.4 times more likely than Controls to be divorced or separated. Overall, AALs reported more decouplings than NAALs, who reported more decouplings than Controls. Therefore, hypothesis 2 was supported.

Child Behavior Problems

The following set of analyses tested hypotheses 3 - 3.3. A 2 (mother, father) X 3 (AAL, NAAL, Control) RMANOVA was used to examine between-subjects group interactions and main effects on Wave 1 and Wave 2 child behavior problems. Next, a 2 X 3 RMANOVA was conducted to examine within-subject interactions and main effects on total behavior problems.

Overall total behavior problems. The 2 (mother, father) X 3 (AAL, NAAL, Control) RMANOVA tested hypothesis 3, and resulted in a single significant between-subjects main effect of Risk [$F(2,410) = 8.80$, $p<.001$]. The between-subjects MANOVA also revealed a single significant main effect of Risk [$F(4,818) = 8.04$, $p<.001$]. The follow-up ANOVA revealed that only the Risk main effect of Wave 1 behavior problems was significant [$F(2,410) = 15.04$, $p<.001$]. Finally, post-hoc analyses showed that children in the AAL group had more behavior problems than children in the NAAL group, and that children of NAALs had more total child behavior problems than did Control-group children.

Thus, all three groups differed significantly from each other on the CBCL at Wave 1. Hypothesis 3.1, which posited that children of AALs would exhibit more behavior problems than children of NAALS, followed by children of Controls, was supported by these results. However, no differences were revealed between the three groups at Wave 2, therefore, hypothesis 3.2 was not supported by these results.

Total behavior problems and time. A 2 (mother, father) X 3 (AAL, NAAL, Control) RMANOVA was performed to test hypothesis 3.3 that AALs would exhibit more behavior problems over time than NAALs and Controls. The results revealed a significant Risk X Time interaction [$F(2,410) = 6.88$, $p<.001$], as well as a significant Parent X Time interaction [$F(1,410) = 4.49$, $p<.05$], and a significant Time main effect [$F(1,410) = 33.01$, $p<.001$]. No differences were apparent between the Risk groups were at Wave 2, however, the three groups differed significantly at Wave 1. Furthermore, fathers at Wave 1 reported more behavior problems for their children than did mothers; however, the results were reversed at Wave 2 with mothers reporting more behavior problems than fathers. Finally, parents reported significantly fewer behavior problems for their children at Wave 2 than they did at Wave 1. These results did not support hypothesis 3.3.

Regression Analyses: Parental-Reported Predictors of Child Outcome

The hypotheses (hypothesis 4 and 4.1) that nonalcohol-specific factors are stronger predictors of child outcome than are alcohol-specific factors were tested next. Four hierarchical regression analyses were used to test these hypotheses: Two for the Wave 1 data (one for mother data, one for father data); and two for Wave 2 data (one for mother data, one for father data). The lifetime alcohol problems score, an alcohol-specific factor, was entered into the first stage of the model, while the nonalcohol-specific factors of parental life stress, parental daily stress, and child life stress were entered in the second stage of the model alone. Finally, in the third stage, nonalcohol-specific factors were added to the model in combination with the alcohol-specific factor. The dependent variable was child behavior problems.

If nonalcohol-specific factors were stronger predictors of child behavior problems than were alcohol-specific factors then it was expected that: LAPS would significantly predict child outcome in the first stage of the model, however, once the parental life stress, parental daily hassles stress, and child life stress measures were added, the relationship between LAPS and CBCL would become nonsignificant. It was expected that variables measuring nonalcohol-specific effects would be the only significant predictors of child behavior problems for all four models.

Wave 1 Maternal Predictors of Child Outcome

The results for the maternal Wave 1 regression analysis (see Table 12) revealed that in the first stage of the model, total behavior problems was predicted by higher LAPS scores. When the nonalcohol-specific factors were entered into the second stage of the model alone, child behavior problems was predicted by all three measures; parental life stress, daily hassles stress, and child life stress. In the last stage, parental life stress, daily hassles stress, and maternal-reported child life stress combined with LAPS to predict total child behavior problems. These results did not support hypothesis 4. Rather, the nonalcohol-specific factors of parent life stress, daily hassles stress, and child life stress, in combination with the alcohol-specific factors of LAPS predicted child outcome.

Wave 1 Paternal Predictors of Child Outcome

The results for the paternal Wave 1 regression analysis (see Table 13) revealed that LAPS predicted total child behavior problems when entered into the first stage of the model alone. In the second stage, when the nonalcohol-specific factors were entered into the equation alone, total child behavior problems was predicted by paternal-reported daily hassles stress and maternal-reported child life stress. In the last stage of the model, maternal-reported child life stress and paternal daily hassles stress combined with LAPS to predict total child behavior problems. These results did not support hypothesis 4. Although daily

Table 12

Maternal and Child Predictors of Wave 1 Maternal-Reported Total Behavior Problems (n=209)

	Stage		
Variable	1	2	3
Maternal Variables			
LAPS	.27*** (.48)		.15* (.50)
Life Stress		.18* (.77)	.15* (.78)
Daily Hassles		.19** (.08)	.16* (.08)
Child Variable			
Life Stress		.17* (.35)	.15* (.36)
Adjusted R^2	.07***	.13***	.15***
df	(1,207)	(3,205)	(4,204)

Note. Standardized betas are listed in parentheses below beta weights.

*p<.05; **p<.01; ***p<.001.

Table 13.

Paternal and Child Predictors of Wave 1 Paternal-Reported Total Behavior Problems (n=206)

	Stage		
Variable	1	2	3
Paternal Variables			
LAPS	.35*** (.43)		.24*** (.43)
Life Stress		-.04 (.68)	-.07 (.67)
Daily Hassles		.35*** (.09)	.31*** (.09)
Child Variable			
Life Stress		.21** (.38)	.16* (.37)
Adjusted R^2	.12***	.18***	.23***
df	(1,205)	(3,203)	(4,202)

Note. Standardized betas are listed in parentheses below beta weights.

*p<.05; **p<.01; ***p<.001.

hassles stress and child life stress were significant predictors of child behavior problems so was LAPS.

Wave 2 Maternal Predictors of Child Outcome

The results of the maternal Wave 2 regression analysis (see Table 14) revealed that LAPS predicted Wave 2 total behavior problems when entered alone in the first stage of the model. When the nonalcohol-specific factors were entered into the equation alone in the second stage, only child life stress predicted total child behavior problems. Finally, when LAPS and all stress measures were entered in the last stage together, only maternal-reported child life stress predicted total child behavior problems. These results supported hypothesis 4.1. Nonalcohol-specific factors were stronger predictors of child behavior problems than were alcohol-specific factors.

Wave 2 Paternal Predictors of Child Outcome

Results of the paternal Wave 2 regression analysis (see Table 15) revealed that LAPS predicted child behavior problems when entered into the first stage of the model. When the nonalcohol-specific factors were entered alone in the second stage of the model, only paternal daily hassles predicted total child behavior problems. In the third stage, paternal daily hassles stress in combination with LAPS predicted child behavior problems. Hypothesis 4.1 was not supported by these results. Both daily hassles stress and LAPS predicted child behavior problems.

Overall, the results of the regression analyses

Table 14

Maternal and Child Predictors of Wave 2 Maternal-Reported Total Behavior Problems (n=209)

	Stage		
Variable	1	2	3
Wave 1 Maternal Variable			
LAPS	.14** (.52)		.05 (.53)
Wave 2 Maternal Variables			
Life Stress		.06 (.80)	.05 (.82)
Daily Hassles		.14 (.10)	.13 (.10)
Wave 2 Child Variable			
Life Stress		.21** (.46)	.21** (.46)
Adjusted R^2	.02*	.08***	.08***
df	(1,207)	(3,205)	(4,204)

Note. Standardized betas are listed in parentheses below beta weights.

*p<.05; **p<.01; ***p<.001.

Table 15

Paternal and Child Predictors of Wave 2 Paternal-Reported Total Behavior Problems (n=206)

	Stage		
Variable	1	2	3
Wave 1 Paternal Variable			
LAPS	.23** (.43)		.18** (.44)
Wave 2 Paternal Variables			
Life Stress		.03 (.77)	-.00 (.77)
Daily Hassles		.25*** (.09)	.22** (.09)
Wave 2 Child Variable			
Life Stress		.01 (.43)	.00 (.43)
Adjusted R^2	.05***	.05**	.08***
df	(1,205)	(3,203)	(4,202)

Note. Standardized betas are listed in parentheses below beta weights.

*p<.05; **p<.01; ***p<.001.

partially supported Hypotheses 4 and 4.1. Only the Wave 2 maternal model supported the hypothesis that nonalcohol-specific factors would be the only significant predictors of total child behavior problems. For the other three models, both nonalcohol-specific factors and alcohol-specific factors, predicted child behavior problems.

These results indicated that the model explaining the most variance in child behavior problems was one in which both alcohol-specific and nonalcohol-specific factors are included. Lastly, the analyses revealed that for fathers daily hassles and life events stress (i.e., CLS) predicted child behavior problems at Wave 1, while only daily hassles stress predicted child behavior problems at Wave 2. For mothers, both daily hassles stress as well as life events stress (i.e., PLS & CLS) were significant predictors.

MANOVAs and ANOVAs: Decoupling

Decoupling and Parent Stress

Hypothesis 5 proposed that a decoupling would be associated with increased levels of family stress for both AALs and NAALs. To test this hypothesis, a 2 (coupled, decoupled) X 2 (AAL, NAAL) MANOVA was performed on the dependent variables of Wave 2 parental life stress, daily hassles stress, and maternal-reported child life stress.

The results of the MANOVA revealed a significant Decoupling main effect [$F(3,242) = 22.13$, $p<.001$]. Results of the univariate ANOVA showed that the Decoupling main effects of parental life stress [$F(3,242) = 57.85$, $p<.001$],

daily hassles stress [$F(3,242) = 6.47$, $p<.05$), and child life stress [$F(3,242) = 23.08$, $p<.001$], were all significant (see Table 16). Both AALs and NAALs that were no longer coupled had higher levels of family stress than those that were coupled. These results supported hypothesis 5.

Decoupling and Child Outcome

Next, to test hypothesis 6, that COAs living in homes with only one parent (due to a decoupling) experience more Wave 2 total behavior problems, a 2 (coupled, decoupled) X 2 (AAL, NAAL) ANOVA was conducted. The results revealed that neither the interaction nor the main effect were significant. These results did not support hypothesis 6.

Structural Equation Modeling

Hypothesis 7 proposed that the relationship between nonalcohol-specific effects (family stress) and child outcome would be mediated by Wave 2 family stress and decoupling. This hypothesis was tested using structural equation modeling (SEM).

LISREL 8 (Jöreskog & Sörbom, 1993) was used to obtain the maximum likelihood estimates of the model coefficients, and a covariance matrix was analyzed. In order to maximize sample size and decrease truncation of variance, one set of SEMs was performed on the overall sample (see Table 17 for means, standard deviations, and correlations for variables included in analyses).

First, two measurement models were tested, one for Wave 1 data (see Figure 1) and one for Wave 2 (see Figure 2).

Table 16

Differences Between Coupled and Decoupled Families on Wave 2 Family Stress Measures

	Coupled (n=213)		Decoupled (n=35)		
Variable	M	SD	M	SD	F
[Multivariate F(3,242) = 22.13, p<.001]					
Parent Life Stress	1.1	1.2	3.1	2.3	57.85***
Daily Hassles Stress	17.1	10.6	23.2	15.16	6.47*
Child Life Stress	4.0	2.5	6.1	2.72	23.08***

*p<.05; **p<.01; ***p<.001.

Table 17

Means, Standard Deviations, and Correlations for All Measures for Entire Sample (n = 416)

	ASBM	ASBP	LAPSM	LAPSP	PLSM1	PLSP1	PLSM2	PLSP2
ASBM	1.00	.30***	.53***	.29***	.33***	.30***	.29***	.29***
ASBP		1.00	.19**	.60***	.30***	.34***	.18**	.30***
LAPSM			1.00	.29***	.31***	.26***	.29***	.29***
LAPSP				1.00	.16*	.26***	.20**	.23***
PLSM1					1.00	.64***	.48***	.48***
PLSP1						1.00	.32***	.59***
PLSM2							1.00	.59***
PLSP2								1.00
M	10.4	16.5	9.9	9.3	1.1	1.2	1.1	1.0
SD	6.9	10.6	2.0	2.3	1.4	1.6	1.4	1.4

*p<.05; **p<.01; ***p<.001.

(table continues)

ASBM = Maternal Antisociality
ASBP = Paternal Antisociality
LAPSM = Maternal Lifetime Alcohol Problems
LAPSP = Paternal Lifetime Alcohol Problems
PLSM1 = Wave 1 Maternal Life Stress
PLSP1 = Wave 1 Paternal Life Stress
PLSM2 = Wave 2 Maternal Life Stress
PLSP2 = Wave 2 Paternal Life Stress

Table 17 (cont'd)

	HSLM1	HSLP1	HSLM2	HSLP2	CLSM1	CLSM2	CBCL1	CBCL2
HSLM1	1.00	.27***	.67***	.17*	.17*	.27***	.25***	.23***
HSLP1		1.00	.23***	.63***	.27***	.27***	.35***	.32***
HSLM2			1.00	.23***	.21***	.29***	.18**	.20**
HSLP2				1.00	.21**	.23***	.24***	.25***
CLSM1					1.00	.54***	.35***	.30***
CLSM2						1.00	.23***	.23***
CBCL1							1.00	.67***
CBCL2								1.00
M	20.4	18.8	17.6	17.4	4.9	4.1	28.8	25.8
SD	12.5	11.0	10.8	11.8	2.9	2.4	12.0	11.7

*$p<.05$; **$p<.01$; ***$p<.001$.

HSLM1 = Wave 1 Maternal Daily Hassles Stress
HSLP1 = Wave 1 Paternal Daily Hassles Stress
HSLM2 = Wave 2 Maternal Daily Hassles Stress
HSLP2 = Wave 2 Paternal Daily Hassles Stress
CLSM1 = Wave 1 Child Life Stress
CLSM2 = Wave 2 Child Life Stress
CBCL1 = Wave 1 Parental Total Child Behavior Problems
CBCL2 = Wave 2 Parental Total Child Behavior Problems

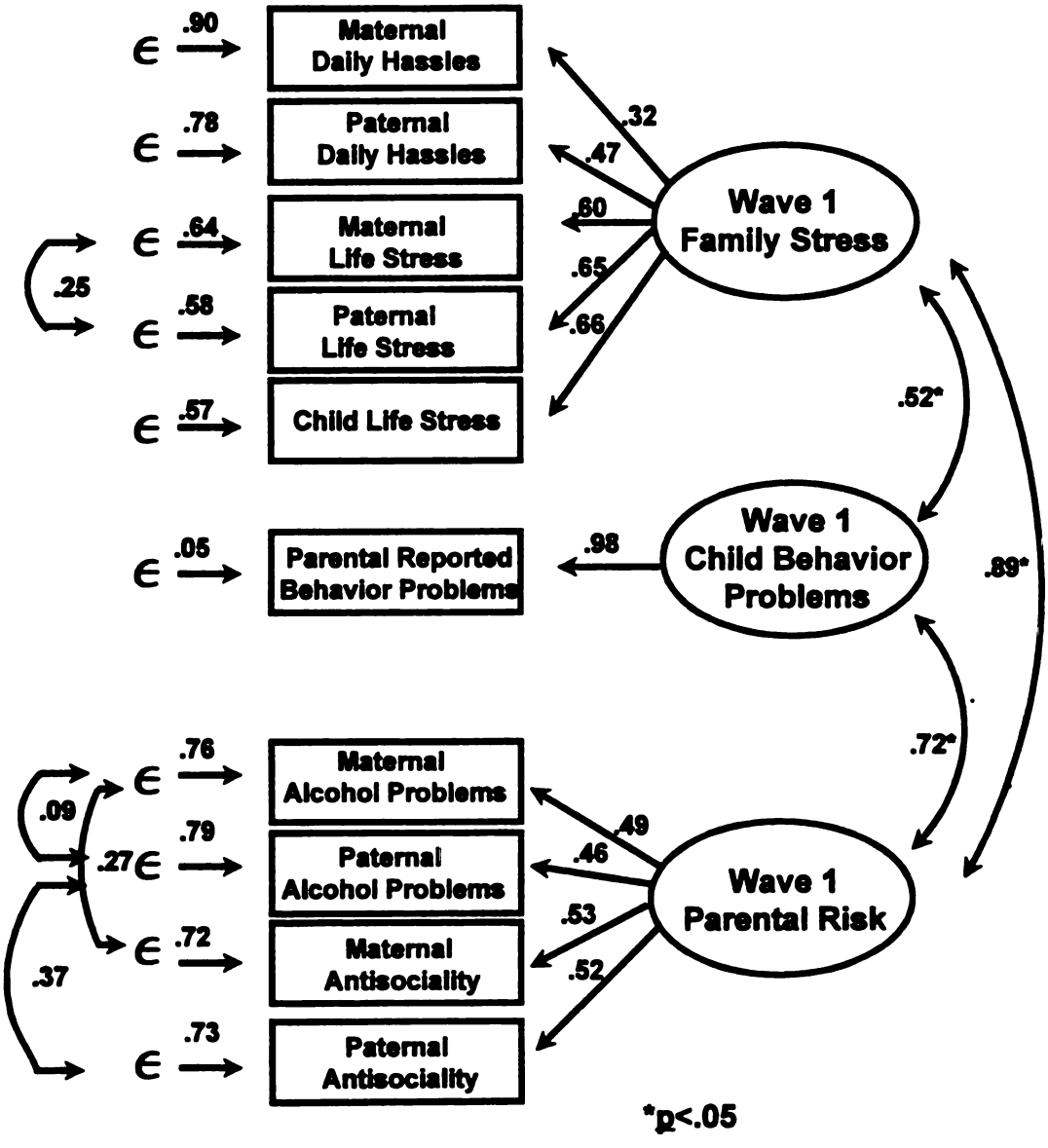

Figure 1. Measurement model for Wave 1 family stress, child behavior problems, and parent risk.

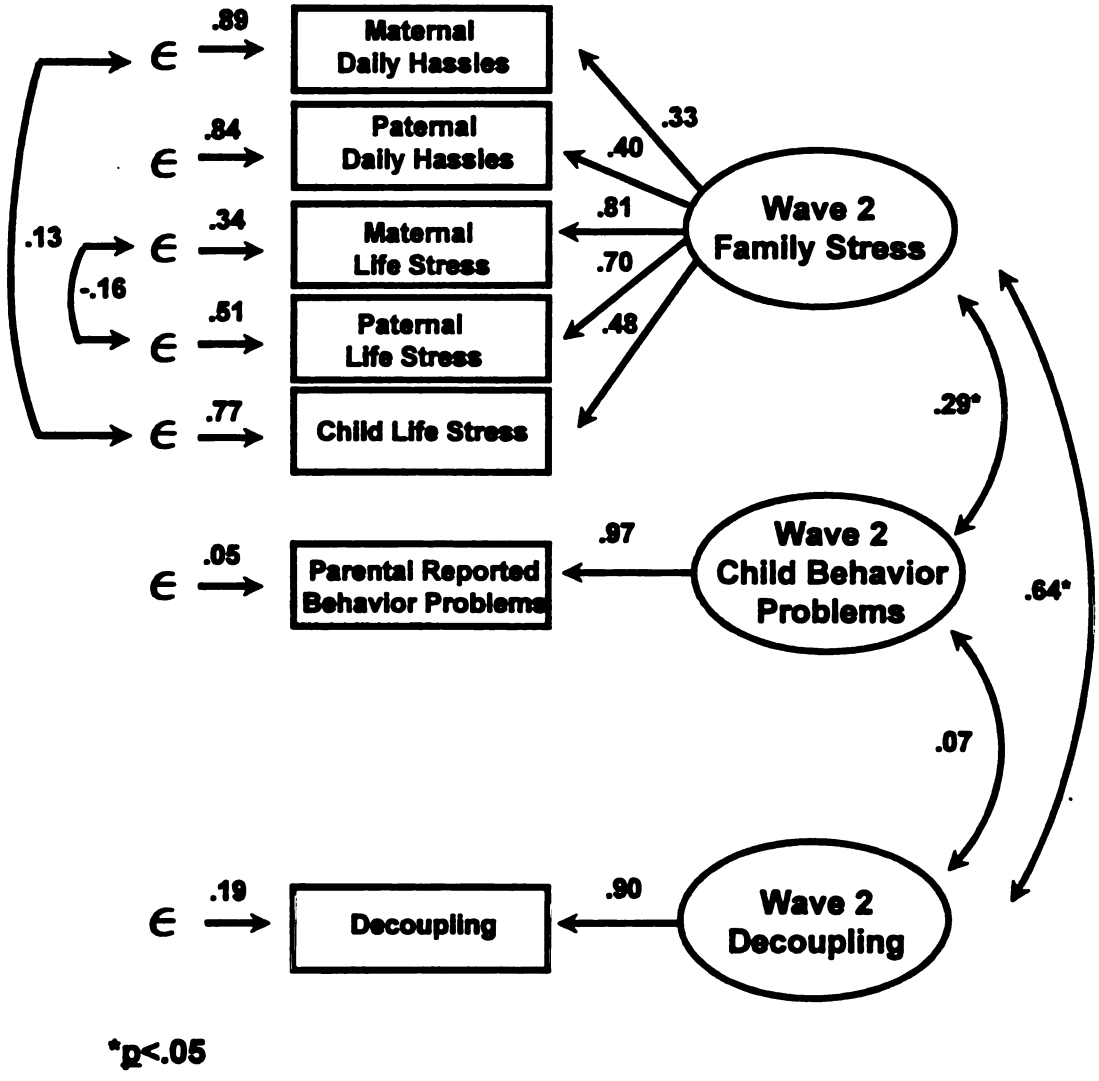

Figure 2. Measurement model for Wave 2 family stress, total child behavior problems, and parental decoupling.

In the present study, Risk group was operationalized by both lifetime alcohol problems and antisociality, for this reason, the latent construct of parent risk was composed of both LAPS and ASB. To verify that the LAPS and ASB represented the same latent construct, a principal components factor analysis was performed with maternal LAPS, paternal LAPS, maternal ASB and paternal ASB scores. Two factors were extracted accounting for 78.4% of the variance. However, all four scores loaded on the first factor which accounted for 52.6% of the variance. Based upon these results, it was concluded that parent risk was best represented by a composite of ASB and LAPS.

Furthermore, an average parental rating of child behavior problems was used to construct the single indicator latent variable of child behavior problems. This decision was based upon the results that revealed no differences between mother and father ratings of total child behavior problems at either Wave 1 or Wave 2.

The Wave 1 measurement model resulted in a significant Chi-Square [$X^2(29, \underline{N} = 207) = 56.48, \underline{p}<.01$], but a goodness of fit index (GFI) of .95, a root mean square residual (RMR) of .12, and comparative fit index (CFI) of .92. When considered together, the fit indices provide evidence for a model that fit the data. The fit of this measurement model was then compared to a Wave 1 null model, which included no paths from the indicators to the latent constructs. The Wave 1 measurement model fit the data significantly better

than the null model (X^2 difference(16, N = 207) = 209.28, p<.001]. The Wave 2 measurement model also fit the data significantly better than the Wave 2 null model, which contained no relationships among the Wave 2 indicators and Wave 2 latent constructs (X^2 difference(5, N = 207) = 98.65, p<.001]. The Chi-Square for the Wave 2 measurement model was not significant [X^2(11, N = 207) = 19.17], the GFI was .97, the RMR was .084, and the CFI was .97; therefore, it was concluded that this model fit the data well. These measurement models were used for the remainder of the analyses.

Next, an isolated stability model tested the stability of the longitudinal latent constructs. This model contained only two beta paths, one from Wave 1 family stress to Wave 2 family stress, and one from Wave 1 behavior problems to Wave 2 behavior problems (see Figure 3). Stability of the measures across time was obtained. Although the Chi-Square [X^2(107, N = 207) = 198.40, p<.001] was significant, the GFI was .90, the RMR was .14, and the CFI was .93, indicating that this model fit the data.

Once the stability and measurement models were established, three competing hypothesized models were analyzed. The three competing models tested nonalcohol-specific versus alcohol-specific effects. It was hypothesized that the nonalcohol-specific factors of Wave 2 family stress and decoupling would mediate the relationship between Wave 1 family stress and child outcome. Parent

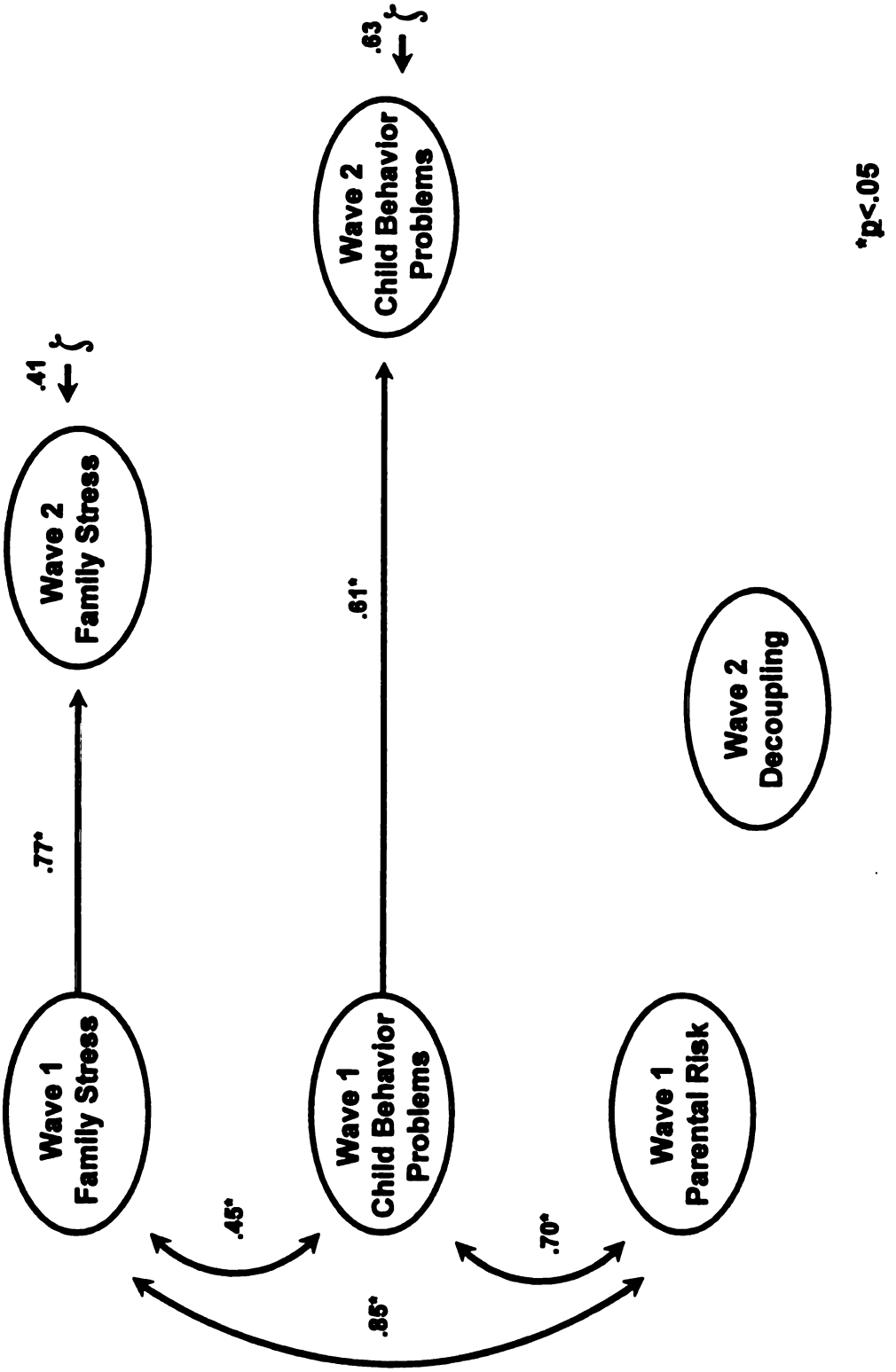

Figure 3. Isolated stability model of the longitudinal latent constructs.

risk would only have a direct path to child behavior problems. The first model was a spurious model. This model tested a direct relationship between all Wave 1 variables and all Wave 2 variables (see Figure 4). It was tested so that any spurious relationships between Wave 1 family stress, alcohol risk, and child behavior problems, and Wave 2 child behavior problems could be ruled out. If the relationship between these variables was spurious, this model would have resulted in a better fit than the other two models. However, the fit of the spurious model was not good. The Chi-Square [$X^2(126, N = 207) = 946.51, p<.001$] was significant, the GFI was .61, the RMR was .30, and the CFI was .34. Due to the poor fit of the spurious model to the data, it was rejected.

The next model, Model 2 (see Figure 5), tested the hypothesis that nonalcohol-specific factors (i.e., stress) are stronger predictors of child outcome than are alcohol-specific factors (i.e., parent risk). It was hypothesized that Wave 2 family stress and decoupling would mediate the relationship between Wave 1 family stress and child outcome, whereas, parent risk would only influence child outcome directly. The results of the model revealed a significant Chi-Square [$X^2(104, N = 207) = 165.40, p<.001$], a GFI of .91, a RMR of .15 and a CFI of .95. Overall, these fit indices indicated the model fit the data. However, only two paths were significant and positive; the path from Wave 1 family stress to Wave 2 family stress, and the path from

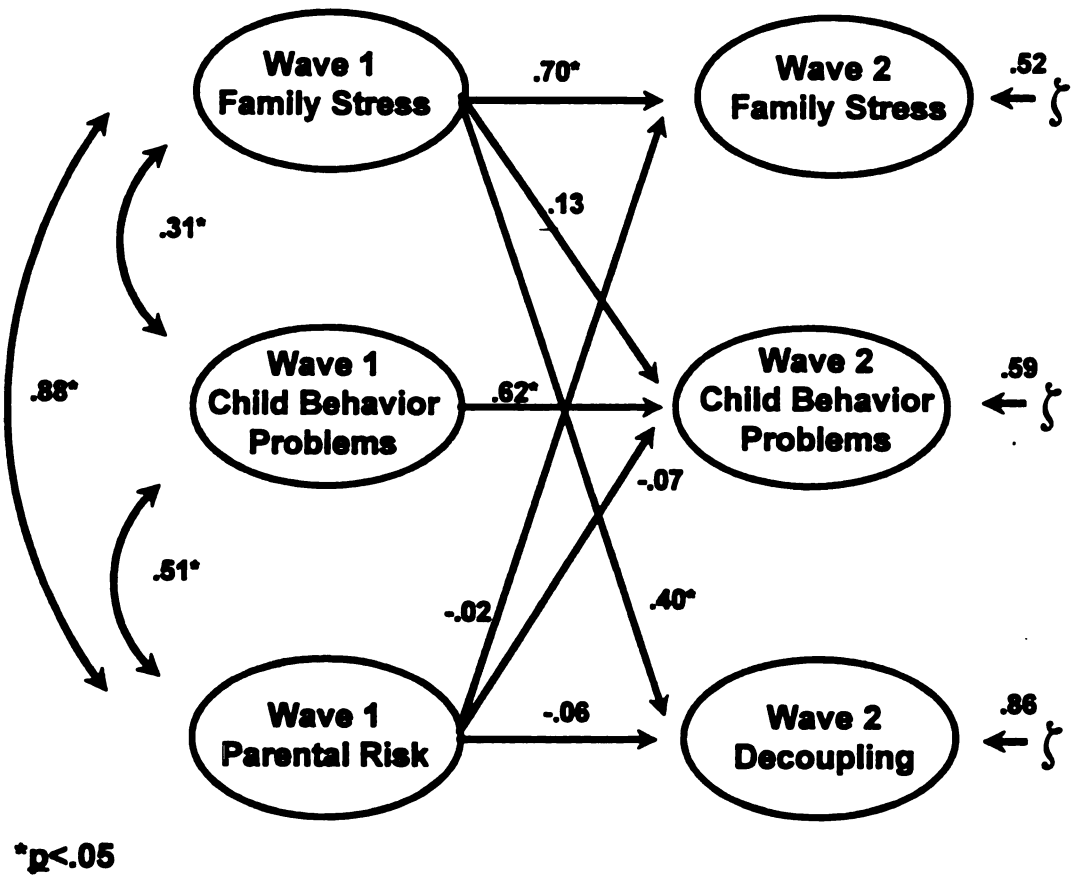

Figure 4. Spurious model for all Wave 1 and Wave 2 latent constructs.

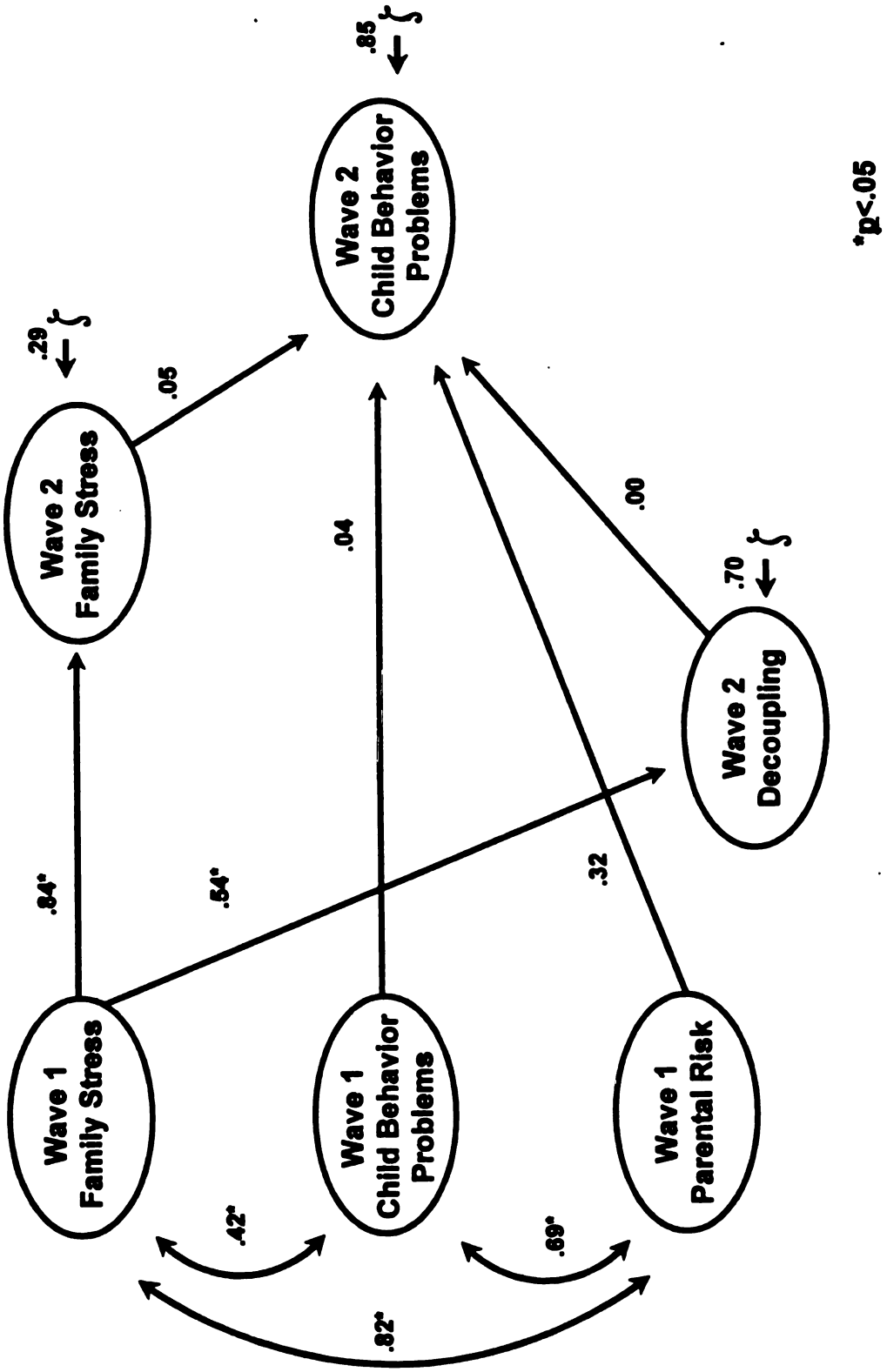

Figure 5. Model of Wave 1 nonalcohol-specific factors predicting Wave 2 total child behavior problems.

Wave 1 family stress to Wave 2 decoupling.

The third competing model tested the relationship between parent risk and child behavior problems when mediated by family stress and decoupling at Wave 2. This model was not capable of being solved. A path coefficient (from Wave 1 family stress to Wave 2 family stress) was larger than 1 indicating that the model needed to be revised.

A revised and final model was constructed by examining the modification indices for both Model 2 and Model 3. Modification indices for both models suggested that the residual terms for Wave 2 family stress and Wave 2 decoupling constructs be allowed to covary. In addition, the modification indices for Model 2 indicated that a path be added from Wave 1 parental risk to Wave 2 decoupling.

Therefore, the exploratory phase of model-building began when the residual terms for Wave 2 family stress and Wave 2 decoupling were allowed to covary for Model 3. The results revealed that the revised Model 3 fit the data. This final model resulted in a significant Chi-Square [$X^2(103, N = 207) = 154.16, p<.001$], but a GFI of .93, a RMR of .14 and a CFI of .97 (see Figure 6 for final model). Based upon this model, child behavior problems at Wave 2 was only predicted by child behavior problems at Wave 1. Furthermore, this model resulted in a large Wave 1 parental risk and Wave 1 family stress correlation ($r=.96$). Considering that in the present study, parental risk is a

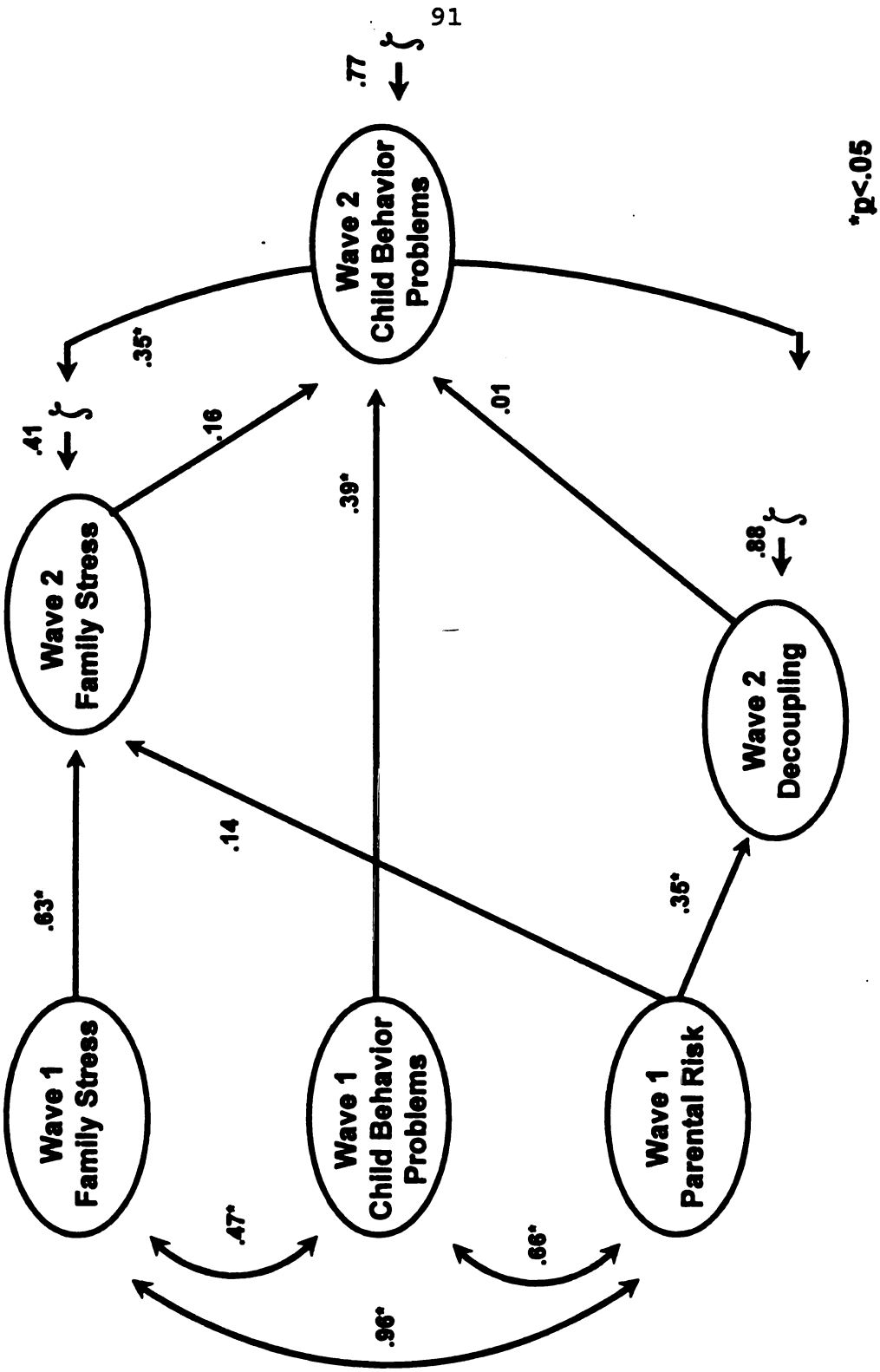

Figure 6. Final model representing the longitudinal relationships among family stress, parental risk, decoupling and total child behavior problems.

lifetime measure, whereas family stress is a current measure, this large value may indicate that parental risk should temporally precede family stress and child behavior problems in the model.

Overall, the results of the SEM did not support hypothesis 7. The nonalcohol-specific factor of family stress was not a stronger predictor of child outcome than the alcohol-specific factor of parental risk. Rather, only child behavior problems at Wave 1 predicted child behavior problems at Wave 2.

Discussion

The study of the development of behavior problems in COAs is complex and involves multiple factors. For example, parental variables, such as alcoholism and stress may influence child outcome, as may family factors, such as decoupling. However, individual child factors such as temperament and previous behavior problems also play an important role. The present study examined the longitudinal relationships among family stress, alcohol problems, antisociality, decoupling and child behavior problems.

Risk Group Categorization

The classification of families in the present study as AALs, NAALs or Controls was based only on paternal measures of ASB and LAPS; the degree of maternal ASB and LAPS was not considered in this classification process. Thus, although a hypothesis was not proposed, the extent to which this classification scheme (Zucker's typology; Ellis, 1992; Zucker, 1987; 1994; Zucker et al., 1994) applied to the mothers in the present sample was of interest.

The results revealed that mothers in the AAL group scored higher on the ASB than mothers in the NAAL group, who scored higher than mothers in the Control group. Furthermore, AAL mothers reported more lifetime alcohol problems than did NAAL mothers. These results are consistent with those reported by Zucker and his colleagues for males (Ellis, 1992; Zucker, 1987; 1994; Zucker et al., 1994), and although they are preliminary, they provide

support for the application of Zucker's typology to females as well as to males. Yet, in order to confirm that this classification scheme is an appropriate one for females further research is warranted in this area.

Alcohol Typologies

Previous research indicates that there is more than one type of alcoholic (e.g., Ellis, 1992; Cloninger, 1897; Zucker, 1987; Zucker, et al., 1994), and that outcomes for children differ based on the type of alcoholism their parent(s) exhibit. The results of the present study partially support this research. Results of the present research indicated that children of antisocial alcoholics exhibit more behavior problems than did children of non-antisocial alcoholics, followed by children of Controls. However, no differences were seen between these three groups at Wave 2 when the children were between the ages of 6.0 and 8.9. Rather, the differences that were apparent between these groups at Wave 1 were no longer significant at Wave 2. These results were not expected, and are contrary to research indicating that COAs are at increased risk for developing emotional and behavioral problems (e.g., Dawson, 1992; Jansen et al., 1995; West & Prinz, 1987; Woodside, 1988). A possible explanation for this finding concerns the timing of Risk status classification. Families in the present study were classified as AALs, NAALs, and Controls at Wave 1, risk status, therefore, was not updated at Wave 2 even though 3 years passed between the first and second

waves of data collection. For many individuals, risk for alcoholism ebbs and flows throughout the lifespan (Zucker, 1991), thus, an individual who exhibits problems related to alcohol when their child is between the ages of 3.0 and 5.9 years, may not exhibit such problems even a year later when their child is 7.0 years of age. It is, therefore, possible that some of those participants classified as Risk group families at Wave 1 were recovering alcoholics at Wave 2. If true, this would support the research of Moos & Billings (1982) that children of recovering alcoholics function at levels similar to those of children of Controls.

Secondly, the lack of differences exhibited between the three groups may be due to the fact that data from only a portion of the sample of the larger longitudinal study were analyzed. Differences may be apparent between the groups if the sample size is increased, and the full set of data is analyzed. Nonetheless, because numerous researchers have reported COAs are at increased risk for developing behavior problems (e.g., Dawson, 1992; Jansen et al., 1995; West & Prinz, 1987; Woodside, 1988), and no differences were revealed in this study, more research is warranted in this area.

Family Stress Over Time

The results of the present study revealed that family stress levels decreased from Wave 1 to Wave 2. The sample of children at Wave 1 were in the preschool-age years, while at Wave 2 the children have entered school. Parenting is

stressful (Crnic & Greenberg, 1990), however, it may be more stressful in certain respects during the preschool-years than it is during the early school years. Parents spend more time with their preschool-aged children than they do with their school-aged children (Maccoby, 1984). Considering that the present sample is lower middle to middle-class, based on census tract information, and that for many families both parents work outside the home, the added demand on time from children can increase stress levels. Although when children enter school a whole new set of parental stressors emerge, such as monitoring the whereabouts of offspring, the demand on parental time decreases somewhat as do overall stress levels at Wave 2.

The finding that stress levels decreased over time, may also be due to an increase in the use of resources at Wave 2 by families in the present sample. Individuals who utilize more resources often cope with stressors more effectively (Lazarus & Folkman, 1984). For instance, Muller et al. (1994) reported that for mothers in their sample, higher levels of social support decreased levels of daily hassles stress.

Conversely, the fact that stress levels decreased over time could indicate that although families were experiencing "stressors" in their lives, they did not appraise these events as problematic. According to cognitive appraisal theory, events must be appraised as taxing or exceeding coping mechanisms in order to be viewed as stressful

(Lazarus, 1966; Lazarus & Folkman, 1984). Future studies should include examination of individual cognitive appraisals of events as stressful. In addition, the number and type of resources (e.g., social support) individuals utilize during such times should be examined in order to more fully understand how stress affects outcomes.

Decoupling

The results of the present study revealed that AALs experienced more decouplings than NAALs, followed by Controls. These findings support previous research indicating that alcoholics are more likely to be divorced or separated than non-alcoholics (Drake & Vaillant, 1988), and that antisocial individuals are at increased risk for transitions in the family structure (Patterson & Capaldi, 1991).

The results of the present study also revealed that stress levels were higher for both AAL and NAAL families when there was a decoupling in the family. These results corroborate the research findings of Hetherington (1989) that parents and children experience increased emotional distress, psychological and health difficulties within two years following a divorce.

However, the present results did not support the hypothesis that child behavior problems would differ for COAs depending upon whether or not their parents were decoupled. Rather, the results revealed no differences at Wave 2 between AAL and NAAL children in number of total

behavior problems. This result is contrary to previous research, which suggests that following a divorce or separation boys exhibit increased behavior problems in the home and at school (Cherlin et al., 1991; Hetherington, 1989). However, it is possible that for AALs and NAALs in this sample the quality of the home environment was so poor prior to a decoupling, that the decoupling did not worsen the situation but merely maintained it. This interpretation is consistent with that of Patterson and Capaldi (1991) who reported that for families of antisocial individuals, a divorce or separation did not make a bad situation any worse. However, the present study did not include an examination of marital conflict, therefore, it cannot assess the quality of the home environment either prior to or following the decoupling. It is possible that decoupling in the present sample did not directly influence child behavior problems. Rather, its effects may have been mediated by other contextual variables more proximal to child outcome.

Lastly, it seems plausible that if parents who are decoupled are experiencing more stress in their lives than those who are coupled (Hetherington, 1989; Hetherington et al., 1982), then decoupled parents are coping with other immediate stressors and are not sensitive to the problems of their children (Webster-Stratton, 1990). Perhaps reports of child behavior problems from multiple sources would represent a clearer picture of the situation (Phares et al., 1989). According to Phares and associates (1989) parents,

teachers, and children offer unique perspectives on child behavior problems. For example, when Rubio-Stipec et al. (1991) gathered information from both parents and children about child behavior problems, the researchers found that for parents the quality of the home environment was the strongest predictor of child outcome, but when children were the informants of their own behavior, alcohol problems were the strongest predictors.

Nonalcohol-Specific/Alcohol-Specific Factors

It was hypothesized that stress, a nonalcohol-specific factor, would be a stronger predictor of child behavior problems than would lifetime alcohol problems, an alcohol-specific factor. This result was supported only for maternal data at Wave 1. The remaining three models (mothers Wave 2 model and both Wave 1 and Wave 2 fathers models) indicated that both alcohol-specific and nonalcohol-specific factors in combination influenced child outcome. These results are contrary to previous findings which report that nonalcohol-specific factors such as general distress and the family environment are stronger predictors of child outcome (e.g., Jacob et al., 1991; Rubio-Stipec et al., 1991). However, the results of the present research supported a multifactorial approach to the study of child behavior problems. Both nonalcohol-specific factors and alcohol-specific factors must be considered in combination, to more fully explain the development of behavior problems in children.

Lastly, the results of the multiple regressions revealed that for fathers, only daily hassles (not life events) stress predicted child outcome, but only at Wave 2. These results corroborate previous research which suggests that daily hassles stress is a stronger predictor of child and adult outcomes than is life events stress (e.g., Hall & Farel, 1988; Kanner et al., 1981). Results for mothers at both waves of data collection, and fathers at Wave 1, however, revealed that both life events and daily hassles stress predicted child outcome. These results support the arguments of Wagner and his colleagues (1988). Based upon these findings investigators should consider including both life events and daily hassles stress measures in their studies. Whereas one type of parental stress is a stronger predictor of outcome for some individuals, at some point in time, it is not so for others. However, to better understand these differences more research is warranted.

LISREL Analyses

The results of the LISREL analyses revealed that when all study variables were examined concurrently, the only variable that had a direct path to child behavior problems at Wave 2 was Wave 1 child behavior problems. These results were not expected. The nonalcohol-specific factor of family stress did not have a direct influence upon child behavior problems.

Although the results of the LISREL models did not support the hypothesis proposed, they supported previous

research findings that suggest child behavior problems are stable across time (e.g., Fischer, Rolf, Hasazi, & Cummings, 1984). Numerous researchers have reported that parental variables influence child behavior problems (e.g., Beautrais et al., 1982; Moses, 1992). However, it is possible that in the current study the parental variables that directly influence child outcome were not included. For example, variables such as marital conflict, parent-child interactions, family environment, and parental discipline practices. The homes of many COAs have been described as disorganized and chaotic (e.g., Jacob & Leonard, 1986; Woodside, 1983). Although stress levels of families are expected to increase in a chaotic environment (Moos & Billings, 1982), and in turn influence child outcome (Beautrais et al., 1982; Cohen et al., 1987; Hall & Farel, 1988), it is possible that a more central variable to family environment is a better measure of family functioning.

The results of the present study may also be telling of a developmental process that begins in infancy and early childhood with difficult temperament and behavior problems, and culminating in antisociality in adolescence (and adulthood) and alcohol problems in adulthood (Tarter & Vanyukov, 1994). Previous studies have reported a relationship between difficult temperament and behavior problems (e.g., Jansen et al., 1995). Caspi, Henry, McGee, Moffitt and Silva (1995) found that for the participants in the Dunedin Multidisciplinary Health and Development Study,

difficult temperament characteristics at 3 and 5 years of age were related to child behavior problems at ages 9, 11, 13, and 15 years. Child temperament was not assessed in the present study. However, previous analyses from Wave 1 of the MSU-UM Family study suggested that boys classified as having clinical behavior problems (i.e., scoring above the clinical range on the Total Behavior Problems scale of the Child Behavior Checklist) had more difficult temperaments, and had parents who were more antisocial and had more lifetime alcohol problems than boys not in the clinical range (Jansen et al., 1995). Therefore, it is possible that if child temperament were included in the models, it would have resulted in a direct path to child behavior problems.

In summary, the results of the present study taken together indicated that AAL families experienced more stress and decouplings at Wave 2 than NAAL and Control families. Findings also indicated that, although both nonalcohol-specific factors and alcohol-specific factors predicted child outcome, when all variables were considered concurrently only a direct relationship between Wave 1 behavior problems and Wave 2 behavior problems was revealed. Thus, although the other factors considered in the family environment did not have a direct effect upon child behavior problems they may play a role in maintaining the level of child behavior problems, which may then lead to antisociality and alcoholism (Tarter & Vanyukov, 1994). Thus, even as early of 3.0 years of age, children of AALs

may be on a developmental trajectory which leads to later antisociality and alcohol problems (Jansen et al., 1995; Tarter & Vanyukov, 1994).

Future Directions

Analyses in the present study included two waves of data collection, spaced three years apart. Although the initial stages of a developmental trajectory leading to alcoholism may be apparent, it is important to further investigate these relationships over a longer period of time. Causal pathways among parental and child variables must be mapped by considering more than two time points so that temporal ordering can be established (Zucker & Gomberg, 1986). This is especially important when one considers that for some individuals risk for alcoholism ebbs and flows throughout the life span (Zucker, 1987). A risk factor that negatively influences development at one period of time, may not have such effects at another period.

A strength of the present study is that Risk parents do not represent the treatment population of alcoholics, but rather a sample of alcoholics gathered from the community. However, all subjects were Euro-American and thus generalizations from this study are limited to other Euro-American families. In order to generalize findings to other populations of alcoholics, consideration of nonEuro-American families is crucial. Methodologically sound research studies of nonEuro-Americans have been lacking in psychological research (Graham, 1992), yet, efforts must be

made to correct this.

Finally, as children increase in age, they become involved in multiple environments, and with expanding social networks, such as such as the school and peers, respectively (Maccoby, 1984). In each of these environments individuals are influenced by different factors, but also influence the environment in which they are involved. To understand the full range of behaviors that children exhibit, it is important to collect information on their behavior from multiple sources in each of these settings. Future studies should include information on child behavior problems from parents, teachers, peers, and the children themselves. These different ratings can then be compared and a more complex, detailed picture of child behavior problems can be assessed.

In summary, future research studies should include measures of parental alcohol problems, antisociality, marital conflict, parent-child interactions, as well as child temperament and behavior problems over at least 3 periods of time. Furthermore, studies should include information on child variables from multiple sources including parents, teachers, peers and children themselves. Lastly, so that research findings can be generalized, inclusion of nonEuro-American families is crucial.

APPENDICES

APPENDIX A

Table A

Factor Analysis of Family Crisis List (Parent Life Stress): Factor Loadings for Two-factor Solution (Oblimin Rotation) (n=416)

Item	Life Event	Daily Hassle
1. Went to apply for welfare	**.77**	-.00
2. Welfare payments began	**.73**	-.02
3. Welfare payments stop	**.42**	.03
4. Family member arrested	**.38**	.17
5. Not enough money to pay bills	**.37**	.35
6. Family member appeared in court	**.35**	.27
7. Got evicted	**.28**	.04
8. Family member got traffic ticket	**.24**	.22
9. Moved	**.20**	.02
10. Conflict with ex-spouse	**.19**	.11
11. Policeman came to the door	**.19**	.15
12. Something stolen from house	**.16**	.15
13. Child came home very upset	.09	**.45**
14. Adult came home very upset	.15	**.42**
15. Friend of family having problems	.11	**.38**
16. Received unexpected bill	.30	**.36**
17. Argument with child	.07	**.35**
18. Car needs repairs	.09	**.34**
19. Argument with spouse	.13	**.33**
20. Conflict with local relative	.24	**.33**
21. Family member went to see lawyer	.24	**.31**
22. Meal burned or ruined	.11	**.31**
23. Car broke down/wouldn't start	.16	**.31**
24. Did not have clean clothes	.15	**.30**
25. More than one family member ill	.05	**.30**
26. Child disagreement with friend	.09	**.30**
27. Got a new babysitter	-.03	**.29**
28. Family member had argument with repair man, business person etc.	.10	**.29**
29. Sentimental, valuable item lost	.16	**.29**
30. Caught in traffic jam	.10	**.27**
31. Child left town overnight	.07	**.26**

Note. Items used to define the factors are in bold type.

APPENDIX B

Table B

Factor Analysis of Family Crisis List (Parent Life Stress): Factor Loadings for Three-factor Solution (Oblimin Rotation) (n=416)

Item	Fac1	Fac2	Fac3
1. Went to apply for welfare	**.76**	-.06	-.12
2. Welfare payments began	**.71**	-.08	-.12
3. Welfare payments stop	**.42**	.01	-.03
4. Family member arrested	**.39**	.15	-.09
5. Not enough money to pay bills	**.38**	.33	-.14
6. Family member appeared in court	**.36**	.26	-.11
7. Got evicted	**.29**	.03	-.00
8. Family member got traffic ticket	**.27**	.24	.04
9. Moved	**.23**	.13	.03
10. Child came home very upset	.07	**.42**	-.26
11. Adult came home very upset	.17	**.41**	-.13
12. Friend of family having problems	.13	**.39**	.08
13. Car needs repairs	.12	**.36**	-.02
14. Received unexpected bill	.32	**.35**	-.08
15. Argument with child	.07	**.38**	-.16
16. Got a new babysitter	.01	**.33**	.06
17. Argument with spouse	.14	**.33**	-.08
18. Family member went to see lawyer	.28	**.33**	-.00
19. Conflict with local relative	.25	**.32**	-.10
20. Car broke down/wouldn't start	.19	**.32**	-.03
21. More than one family member ill	.07	**.31**	-.06
22. Meal burned or ruined	.12	**.31**	-.09
23. Did not have clean clothes	.16	**.31**	-.08
24. Family member had argument with repair man, business person etc.	.13	**.30**	-.02
25. Child disagreement with friend	.09	**.28**	-.14
26. Caught in traffic jam	.10	**.26**	-.12
27. Check bounced	.10	**.26**	-.00
28. Child left town overnight	.08	**.26**	-.08
29. Sentimental, valuable item lost	.14	**.25**	-.20

(table continues)

Fac1 = Life Events Stress
Fac2 = Daily Hassles Stress
Fac3 = School and Economic Stress

(Table B cont'd)

Item	1	2	3
30. Pleasant long distance call	-.05	**.25**	.05
31. Some returned from a long trip	-.07	**.25**	-.03
32. Family member saw psychologist, psychiatrist, or counselor	.16	**.25**	-.12
33. Child sent home from school for behavior	-.04	.00	**-.60**
34. School complained about child's academic progress	.08	.08	**-.56**
35. School called to complain about child's behavior	.11	.10	**-.55**
36. Child skipped school	..5	-.07	**-.55**
37. Child suspended from school	-.08	-.05	**-.54**
38. School called to say child may fail one or more subjects	-.02	-.01	**-.38**
39. School called to say child may repeat a grade	.03	.17	**-.36**
40. Something stolen from family member	.10	.15	**-.32**
41. Lost some money	.12	.18	**-.32**
42. Something stolen from house	.12	.10	**-.21**

Note. Items used to define the factors are in bold type.

Fac1 = Life Events Stress
Fac2 = Daily Hassles Stress
Fac3 = School and Economic Stress

APPENDIX C

Table C

Factor Analysis of Family Crisis List (Family Events Stress): Factor Loadings for Two-Factor A Priori Solution (Oblimin Rotation) (n=416)

Item	Life Event	Daily Hassle
1. Went to apply for welfare	**.87**	.08
2. Welfare payments began	**.76**	.08
3. Family member arrested	**.28**	.10
4. Got evicted	**.26**	.03
5. Conflict with ex-spouse	**.17**	.13
6. Adult came home very upset	.10	**.46**
7. Conflict with local relative	.17	**.38**
8. Child came home very upset	.02	**.37**
9. Received bad news about family member	.05	**.36**
10. Conflict with out-of-town relative	.04	**.28**
11. Check bounced	.02	**.26**
12. Moved	.20	**.24**

Note. Items used to define the factors are in bold type.

APPENDIX D

Lifetime Alcohol Problems and Antisociality Analyses

LAPS The LAPS was standardized separately for mothers and fathers, therefore, ANOVAs were run separately for both groups. The results of the one-way ANOVA for maternal data revealed a significant Risk main effect [$F(2,208) = 14.93$, $p<.001$]. Post-hoc comparisons indicated that AAL mothers scored significantly higher on LAPS than did NAAL mothers, however, no differences were revealed between NAAL and Control mothers. The one-way ANOVA for paternal LAPS also resulted in a significant Risk main effect [$F(2,206) = 90.60$, $p<.001$]. According to the post-hoc analyses, AAL fathers received significantly higher scores on the LAPS than did NAALs, and NAALs scored significantly higher than did Controls. Both AAL mothers and fathers received significantly higher scores on LAPS than did NAAL parents, however, only NAAL fathers received higher scores on LAPS than Control fathers.

ASB In order to test differences between AAL, NAAL, and Control parents on ASB, a 2 (mother, father) X 3 (AAL, NAAL, Control) ANOVA was conducted. The results revealed a significant Risk X Parent interaction [$F(2,410) = 47.75$, $p<.001$], a significant Parent main effect [$F(1,410) = 146.13$, $p<.001$], and a significant Risk main effect [$F(2,410) = 128.83$, $p<.001$]. The results of the post hoc comparisons revealed significant differences between all

three Risk groups. Antisocial alcoholics scored higher than did NAALs, who scored higher than Controls. Overall, fathers scored significantly higher on antisociality than did mothers. However, the difference in scores for fathers was much larger than those for mothers. Antisocial alcoholic fathers received much higher scores than did the other fathers. Mothers scores, on the other hand, were more closely distributed.

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