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FAMILY ENVIRONMENT CORRELATES OF ADOLESCENT DRINKING AND RECKLESS DRIVING: A STUDY OF THE PROCESSES OF SEPARATION AND INDIVIDUATION

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FAMILY ENVIRONMENT CORRELATES OF ADOLESCENT DRINKING AND RECKLESS DRIVING: A STUDY OF THE PROCESSES OF SEPARATION AND INDIVIDUATION

By

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ABSTRACT

FAMILY ENVIRONMENT CORRELATES OF
ADOLESCENT DRINKING AND RECKLESS DRIVING:
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Cheryl Lyn Smith-Winberry

This study examined the influences of family climate on the adolescent processes of separation and individuation. It was hypothesized that adolescents' management of alcohol consumption and driving practices, both rites of passage in American society, would be reflective of the manner in which they were separating from their families. School involvement and social environment were thought to mediate these relationships. Hypotheses were examined utilizing a questionnaire methodology with 244 junior and senior high school licensed drivers. Several variables were examined: (1) family climate--Family Environment Scale (Moos, 1974), (2) quantity/frequency drinking index, (3) problem drinking index, (4) transition to drinking index, (5) risky driving index--e.g., accidents, moving violations, and close calls, (6) school commitment--e.g., GPA, truancy, academic expectations, and (7) social environment influences--e.g., peer and parental support for and modeling of exaggerated drinking and driving practices.

The results indicate that family environment variables are related to adolescent drinking and driving practices, even after accounting for peer influences. The stronger relationship between driving practices

and family environment might suggest that family influences are more important when initial learning takes place since drinking usually occurs before driving. Family environment further served to differentiate between normative and problematic drinking and driving. Specifically, a constellation of factors termed "family disregard" were present to a varying degree within the at-risk groups. High rates of drinking and risky driving were associated with a social environment that approved of deviance and with school failure among adolescents. It was speculated that these families failed to provide their adolescents with appropriate values, monitoring, and a commitment to the larger community. In contrast, adolescents who engaged in normative drinking practices perceived their families to be moderately cohesive, more individuated, and tolerant of conflict. Abstainers were closely tied to their families which they perceived as less conflicted, less individuated, and either very cohesive or very disengaged. Perhaps moderate cohesion is a prerequisite for the process of separation; however, more successful adolescents also receive continued monitoring and guidance. Their families are less approving of exaggerated drinking and driving, and they have access to other sources of socially sanctioned adult status--e.g., school competency.

To my husband, Larry, my children, Heather and Gabriel, and my parents. My family is the core through which all experiences and accomplishments become meaningful.

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TABLE OF CONTENTS

LIST OF TABLES

LIST OF FIGURES

INTRODUCTION

The hypothesis that a family's social climate affects the course of child development and behavioral expression has influenced theoreticians and researchers since the 18th century. Although the importance of the family environment is rarely questioned, systematic attempts to identify, measure, and relate the essential elements of the environment to specific areas of child development or to particular behavioral outcomes is a more recent endeavor.

Early attempts at classifying family environment focused on unitary constructs, such as authoritarianism versus permissiveness in parental management styles (Lewin, Lippitt & White, 1939; Elder, 1963; Baumrind, 1967). Further, many of the studies focused on an age group in which family influences were thought to be more salient governors of development--i.e., infancy through early childhood. One reason for such a beginning in the area of family research is the realization that "the family" is a very complex system which changes continuously both to meet the demands of its individual members, and to find its niche or homeostasis within the larger social milieu—i.e., the community. Any attempt at quantification of such an evolving entity is replete with theoretical and methodological difficulties. Thus, in an effort to begin to piece together the puzzle, complexities are simplified, and extrasystem influences are momentarily ignored.

More recently, a number of investigators have attempted to capture the essence of the family social climate, examining multiple constructs thought to be important governors of interpersonal behavior and applying such models to the entire span of the family life cycle (Olson & McCubbin, 1983). Thus, not only is the family examined at times of relative closure--i.e., when extrafamilial influences are minimal--but it is also examined during periods of rapid change and reformation--i.e., during adolescence when extrafamilial influences rise as the family prepares for the exiting of one of its members. Further, various qualities of the family environment are being related to individual functioning and behavior in many areas of development--e.g., social, cognitive, and emotional (Dickinson, Hess, Miyake & Azuma, 1979; Wynne & Cole, 1983; Hess, Azuma, Kashiwag, Dickinson & Nagano, 1984).

The purpose of this study is to examine the influences of the family social climate on the normal adolescent processes of separation and individuation. Adolescents' perceptions of ten constructs of their family environment--cohesion, conflict, expressiveness, achievement orientation, intellectual-cultural orientation, independence, moral-religious orientation, active-recreation, organization, and control--which fall into three general dimensions--i.e., interpersonal relationships among family members, directions of personal growth, and organizational structures--were assessed in a nonclinical, high school population of juniors and seniors (N=244). These perceptions were related to two areas of behavior thought to be reflective of impending adult status, behaviors commonly referred to as rites of passage in our society: (1) adolescent alcohol consumption, and (2) adolescent

driving. Further, in an effort to understand the complexity of these associations, nonfamily influences were assessed and incorporated in the model. It is anticipated that such a research endeavor will provide useful information on an important and frequently neglected aspect of drinking, driving, and the combination of the two; namely, family influences. However, this is not a model of pathology. It is a model which deals with the spectrum of possible outcomes in two defined areas as they relate to various styles of family functioning. The emphasis here is on understanding the interdependence of the family process and individual adolescent growth, not in explaining the deviant expressions of either process.

The need for understanding family influences upon adolescent functioning appears to be a point of debate within the scientific community. Developmentally, there seems to be agreement that early interactions affect many aspects of later functioning. During adolescence, youngsters are seen as turning from their parents as a frame of reference to adopt the standards of their peers (Sullivan, 1953). The assumption is that at this point, family influences assume a subservient role in comparison to peer and other extrafamilial influences.

In 1963, Brittain subjected this traditional view to empirical evaluation. The study focused on the issue of the relative influence of parents and peers on adolescents' choices. Briefly, a large number of high school girls were asked to respond to a hypothetical situation after hearing advice from both a peer and a parent. For the experimental group, the referent was changed between the first and second administration so that the opinion of a peer at time A was the

opinion of the parent at time B. The control group received either parental or peer opinions during both administrations. The investigators discovered that the control subjects were more consistent in accepting the advice of the referent they were presented with--either parent or peer. However, the experimental subjects were more likely to vary their opinion depending on the situation. For less significant problems they would rely on the advise of the peer group. In contrast, for more intimate problems, they are more likely to turn to their parents. Since this study, a large body of literature has accumulated on the relative influences of the family versus the peer group during adolescence. An inspection of the empirical findings leads one to the conclusion that both systems are important. Investigations that put forth a polarized view of the issue, suggesting that the family has little influence or that the family is the only impactful system, are overlooking the complexity of the adolescent's social world. Unfortunately, family influences continue to be given a lower priority in adolescent research, compared to biological, peer and societal influences. The importance of pursuing such a line of research becomes clear when one considers the significant impact the family has on the adolescent's successful accomplishment of age-appropriate social-emotional tasks (Glueck & Glueck, 1950; Haley, 1980).

Prior to the presentation of the actual study, a review of the existing family research dealing with the adolescent's expression of the age-appropriate need for separation and individuation will be made. The focus will be on the aforementioned ten dimensions of family climate and how these dimensions relate to adolescent emotional and

behavioral functioning. As a background for this review, various theories of adolescent socio-emotional development will be presented in order to provide a foundation for understanding the tasks with which a family with an adolescent child is confronted. Finally, the rationale for choosing drinking and driving as the behavioral areas to examine further the relationship between family climate and adolescent development will be discussed. What is known about the phenomenology of drinking and driving will be summarized separately, emphasizing the family correlates.

Theories of Adolescent Socio-emotional Development

Adolescence has been described as the period in the life cycle during which the establishment of a personal identity is of paramount importance (Erikson, 1959). Identity formation has been explored through research in a variety of areas: ego identity, identity formation, identity achievement, identity status, and identity crisis. At the basis of all of these concepts is the idea that the adolescent strives to develop an inner organization of his/her needs, values, and attitudes. The task is to come to terms with one's own uniqueness as a person. The more solid the development of personal identity, the more likely the individual is to be able to resist outside temptations to conform to social pressures. James E. Marcia (1980) describes identity as an "existential position, to an inner organization of needs, abilities, and self-perceptions as well as to a sociopolitical stance." According to his formulation of identity, the adolescent is striving to come to terms with his/her own individuality, while at the same time learning to view himself/herself in relation to external social structures. Failure to resolve these identity issues may lead to

"identity diffusion", which describes a state of feeling empty or insignificant. This situation has been linked to various conditions characterized by a withdrawal from reality or by personality disintegration (Erikson, 1968). In many respects, this theory is the intrapsychic equivalent of Durkheim's theory of social anomie.

Erik Erikson (1959, 1963, 1968) has been the most influential writer on identity development. He notes that identity development is a psychosocial task distinctive of, but not exclusive to, adolescence. In his theory of psychosocial development, Erikson describes the tasks at various points of development in terms of crises--transition points in which decisions about one's life situation and personal values must be made. During adolescence, the crisis is identity versus diffusion. According to the theory, the search for identity does not begin in adolescence. Rather, it begins as self-object differentiation at infancy and reaches its final stage with the self-mankind integration at old age. What is unique about adolescent efforts toward identity integration is that "this is the first time cognitive skills, social expectations, and physical development coincide to enable young persons to sort through and synthesize their childhood identifications in order to construct a viable pathway toward their adulthood" (Marcia, 1980). McKinney et al. (1982) note that it is not the passive acceptance of ascribed roles, such as American, scholar, Jew or Black which are earmarks of a successful identity resolution. Rather, the individual must be active in choosing between these alternatives; "the individual must be an agent as well as a patient." The resolution of developmental crises is characterized by a public commitment to a set of life expectations and personal values.

In making Erikson's formulation empirically more explicit, Marcia (1980) defined four distinct identity types--role diffusion, foreclosure, moratorium, and achievement of a mature ego identity--which he believes reflect possible outcomes of an adolescent's struggle with identity issues. He postulates two dimensions which distinguish among the four statuses: the degree of prior struggles with an identity crisis and the degree of commitment to a system of values. In role diffusion, individuals experience no internal anxiety because they neither challenge ascribed values nor commit themselves to the values with which they have been presented. Foreclosure is an adaptation in which personal struggle is kept to a minimal level by an acceptance of ascribed values which are presented to the child during development, usually by a parent. Accordingly, sophisticated cognitive skills which can assimilate present and past experiences and accommodate one's belief structures are not employed since the process of an active search for self is avoided. Moratorium describes individuals who are struggling to achieve an independent identity; however, the struggle itself, rather than the final resolution, becomes the focus. Such individuals are unwilling to make a commitment to personal values. Instead, they seem to rebel against all values which they feel are being imposed upon them. Finally, a mature ego identity is achieved when the moratorium crisis is successfully resolved. A personal commitment to political, religious, vocational, and sexual goals and values has been made.

Empirical efforts to quantify and study "identity" began with studies of the validity of the construct. Subsequently, many personality correlates have been investigated--i.e., anxiety,

self-esteem, authoritarianism, moral reasoning and cognition. What seems clear is that there is abundant evidence that identity issues are a governing aspect of adolescent development, that youngsters can be distinguished in terms of their involvement in identity struggles, and that resolution of identity struggles--e.g., a mature commitment to a set of values--is a relative concept. That is, a homeostasis is reached and the individual adopts a new sense of self which continues to be modified throughout the adult years.

The aforementioned struggles in forming an independent identity have frequently been interpreted as indicative of a period of development replete with stress. G. Stanley Hall viewed the adolescent stage of development in this manner; he adopted the term Sturm und Drang--storm and stress. This view continues to have its proponents, particularly among sociologists and psychoanalytically oriented psychologists (McKinney, Fitzgerald, & Strommen, 1980). Some writers have gone so far as to characterize all adolescents as possessing a psychopathology (Goldstein, 1971). Put to the test of scientific rigor, this view of adolescence has not been supported. In a well-known longitudinal study of middle-class adolescent males from ages 14 to 22, Offer and Offer (1975) conclude that over the 8 years of development, turmoil is not the universal state of adolescence, nor is it a necessary component of healthy ego development. The study identified three groups of adolescents: continuous growth group, surgent growth group, and tumultuous growth group. Within each group, measures of social and emotional functioning were highly correlated. Thus, there is evidence for a range of ego development among adolescents that appears to be consistent within groups of adolescents.

A natural extension of the pathology-oriented view of adolescence is the notion that adolescent stress and rebellion will naturally spill over into the family. As the adolescent struggles to establish his own identity, he must rebel against parental values and authority in order to complete the process. Bandura and Walters (1959) examined these hypotheses in a normative sample of adolescents and their parents. They found that the boys had internalized the parents' values and standards of behavior to a large degree; consequently, restrictions and external controls had been lightened as the parents came to believe that their children could manage their own behavior. Further, these authors found that emancipation was not a stressful issue, but an issue that had been in process since preadolescence. Thus, there is no more evidence to support the view of family dysfunction during adolescence than there is to support the view of adolescent dysfunction. It seems logical to assume that families show as much diversity in their ability to cope with the added demands of adolescence as do the adolescents themselves.

In summary, the task of forming an independent identity is posited to be a central component of adolescence. The family counterparts of this task are the processes of separation from close family ties and individuation. Inherent in these changes is some normal amount of stress and conflict. For the majority of families,the adolescents' needs are accommodated, with the family serving as a reliable foundation that provides the support needed to make an exit. For other families, meeting these normal developmental demands is more difficult. In part, this may be due to a greater degree of conflict within the adolescent. On the other hand, it could be due to a lack of coping

resources within another subsystem of the family--i.e., parents, marital dyad, family, etc. In an effort to sort through these possiblilties, it would be helpful to take a closer look at specific family climate variables as they relate to the range of psychological and behavioral manifestations of the adolescent's attempt to separate and individuate.

Family Climate Correlates of Adolescent Separation and Individuation

Because the focus of this study is on normal variations in the social climate of families with adolescents, it seems useful to review the data on dimensions of family functioning which are hypothesized to be strengths. To this end, two sets of beliefs will be examined: (1) clinical interpretation of family strengths, and (2) individual family members' views of positive family attributes.

Fisher and Sprenkle (1978) believed that a disproportionate amount of attention had been given to understanding family pathology; consequently, they developed a study to provide clinical practitioners with information on the theoretical principles other colleagues used in strengthening family relationships. As a starting point, they reviewed the literature in three areas of family functioning: cohesion, adaptability, and communication. Next, they developed a list of traits which are used to operationalize these theoretical constructs. An initial sample of 600 clinicians were asked to rank the seven most important features of healthy family functioning. Fifty-two percent of the clinicians responded to the survey. The highest ranked traits, in descending order, were attentive listening, value sender, flexibility, differentiation, speak for self, psychological safety, expression of feelings, support, negotiation, send congruent messages, and attention

to affect. The lowest ranked items were: express thoughts, indicate message is received, spontaneous speech, loyalty, feedback, report complete thoughts, paraphrase, and physical caretaking. The results of this survey indicate that clinicians view healthy families as able to create an environment where family members feel safe, supported, and valued. Of lesser importance are traits which focus on specialized interactional or communication techniques.

Another study of family therapists found that cohesion, adaptability and communication dimensions offered important goals for treatment. The Group for the Advancement of Psychiatry (1970) asked family therapists to indicate their primary goals for therapy from a list of eight goals. Of the 290 respondents, 85% chose improved communication as primary; 56% chose improved empathy, 56% chose autonomy and individuation; 34% chose more flexible leadership; 23% chose reduced conflict. Individual symptomatic improvement was chosen by 23% and improved individual task performance by 12%. Thus, the emphasis is again on creating a supportive climate primarily through the strengthening of communication skills. Of lesser importance are system maintenance and personal growth dimensions.

The second primary source of information on healthy family functioning consists of the opinions of individual family members. Otto (1963) solicited volunteers from the community to attend ten one-and-a-half hour family discussion sessions. Twenty-seven couples from all stages of the life cycle participated in the project. The sessions were taped and transcribed. The following list contains the ten strengths which received the most attention and agreement from the group:

(1) The ability to provide for the physical, emotional, and spiritual needs of a family.

(2) The ability to be sensitive to the needs of the family members.

(3) The ability to communicate effectively.

(4) The ability to provide support, security and encouragement.

(5) The ability to initiate and maintain growth-producing relationships and experiences within and without the family.

(6) The capacity to maintain and create constructive and responsible community relationships in the neighborhood, the school, town and local government.

(7) The ability to grow with and through children.

(8) An ability for self-help, and the ability to accept help when appropriate.

(9) An ability to perform family roles flexibly.

(10) Mutual respect for the individuality of family members.

In contrast to clinicians, it would appear that families put more of an emphasis on interpersonal climate variables. On the other hand, while viewing this dimension as primary, clinicians are more likely to place greater value on system maintenance aspects than families do. Further support for this observation comes from a study conducted by Fisher, Gibbin, and Hoopes (1982). They correlated nonclinical family members views' about the nature of a healthy family with family therapists' perceptions. Families ranked items associated with the dimensions of cohesion higher than therapists. On the other hand, therapists ranked flexibility and shared leadership--adaptability items--higher than families did.

The findings from such research efforts provide valuable data on "healthy family functioning." The need for establishing criteria for normalcy and strength becomes clear when one attempts to define and treat pathology. However, there is a growing concern that broad definitions of family strengths are inadequate to capture the finer characteristics that distinguish families at different points in the family life cycle (Duvall, 1962; Rapoport, 1963; Hill, 1964; Olson & McCubbin, 1983). Thus, attempts are underway to divide the family life cycle into stages so that phase specific dynamics can be investigated. "Adolescence" is posited to be one stage in the family life cycle that requires its own unique skills and strengths in order to meet adequately the concomitant needs of the developing child and maturing parents.

The literature on adolescent family development comes from two primary sources: (1) studies on representative, nonclinical families with an adolescent child who is usually the oldest child, and (2) studies on clinical populations that attempt to distinguish between the families of healthy and disturbed adolescents. Of particular interest is research that isolates family environment variables during different phases of development, allowing for direct comparisons between phases. One research team succeeded in such a feat, giving special attention to the adolescent phase of development. The work of Olson and McCubbin (1983), presented in Families, What Makes Them Work?, will be reviewed. Additionally, selected research focusing on family correlates of adolescent functioning will be reviewed. The dimensions of interpersonal relationships, individual growth, and system maintenance will be emphasized.

Methodological considerations. Before beginning a discussion of the empirical findings, a brief mention of several methodological considerations regarding family research is needed. First, Jacob (1975) cogently argues for the need to present separate findings for each sex. Adolescent males and females exhibit different types of deviance, suggesting that different family factors may also be important. Secondly, the adolescent/family literature operationalizes the concepts of healthy versus unhealthy individual adolescent and family functioning in a wide variety of ways. This variation makes the process of direct comparison of studies difficult at best. A related problem concerns the measures which are employed in the studies. Frequently, the investigators choose to measure family concepts by developing a new scale or questionnaire. Although such procedures are not uncommon in the initial stages of research, they add to the complexity of between-study comparisons. A fourth weakness lies in the simplistic definitions, albeit necessarily so, of family environment. As more information accumulates, complex theories of family process can be devised and tested through the application of sophisticated multivariate analytic techniques. Finally, sampling biases, particularly in research employing clinical populations, limits the overall generalizability of the findings.

Based upon the current methodological inadequacies, there exists a need for research which (1) takes a family systems perspective, (2) utilizes established--reliable and valid--instruments, (3) examines a representative sample of adolescents and their families, (4) employs several alternative definitions of healthy versus unhealthy functioning, and (5) considers sex differences when analyzing the data.

Empirical findings with normal adolescent families. Olson and McCubbin (1983) sought to capture the complexity of marriage and family life across the life cycle. They developed a theoretical model, the circumplex model, which classifies families along two dimensions--adaptability and cohesion. Combining their relative position on each dimension, families are described as falling into one of 16 types. Figure 1 illustrates Olson et al.'s model. Balanced families, represented diagrammatically by the four center areas, are thought to possess the most resources for dealing with familial stress and developmental crises. Extreme family types, represented by the outside corners of the diagram, are characterized by a limited ability to meet familial and extrafamilial demands. Finally, midrange families, represented by the middle circle of the diagram, possess several strengths and resources, yet also manifest certain deficits which may present difficulties when the families are faced with specific types of stressors. The family life cycle was divided into seven stages of development--prechild, young child, school-aged child, adolescent, launching, empty nest, retirement--based upon an expansion of Hill's work (1949).

Olson and McCubbin utilized a survey methodology. A total of 2692 individuals from 31 states responded to the survey. The sample consisted of 1140 couples, plus 412 adolescents with equal numbers of males and females. Each stage of the life cycle was represented by at least 100 families. The sample included mainly white, working-class families, with only 15% of parents lacking a high school education. Indices of family types, family resources, family stress and change, family coping strategies and marital/family satisfaction were examined.

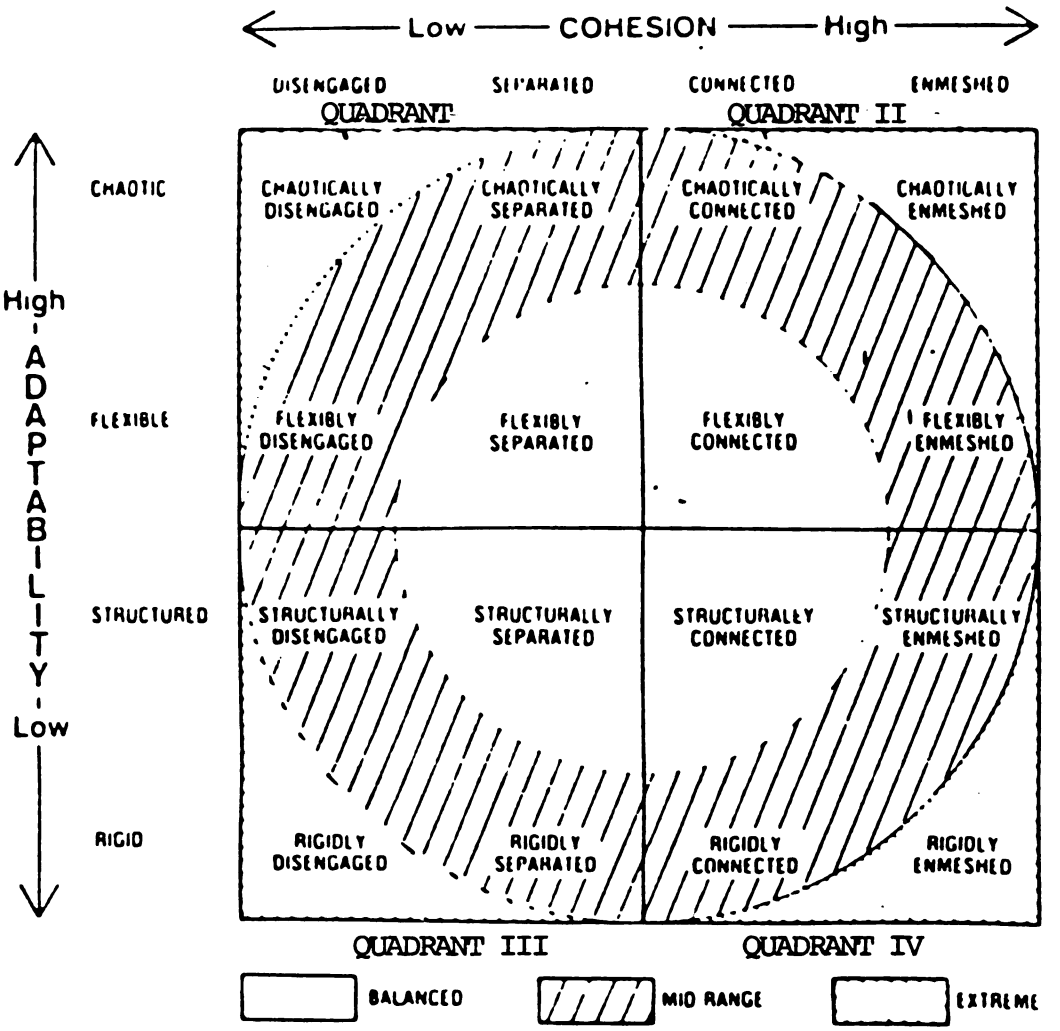

Figure 1. Circumplex Model: Sixteen Types of Marital and Family Systems (Olson & McCubbin, 1983).

The following review will focus on the findings of families with adolescents: (1) perceptions of family environment--cohesion and flexibility, (2) stressors specific to adolescence and (3) strengths and resources.

Related to the family environment, the authors found that levels of family cohesion were highest among families in the early stages of the family life cycle. Family cohesion was lower among families with adolescent children and reached the lowest level with families in the launching stage. Cohesion rose again during the empty nest phases. With regard to family adaptability, adolescents viewed their families as significantly less flexible than did their parents. In general, parents tended to view their families more similarly than did either parent and adolescent. Adolescents' perceptions of lower flexibility and cohesion are explained in terms of the adolescent's need to seek greater intrapsychic and physical autonomy--separation and individuation--from their families. Since they are the ones initiating the family change, it is reasonable to assume that they will view their families as less flexible than their parents do. Thus, adolescents tend to see their families as more extreme and less balanced. (It should be noted that the use of the word extreme in this context is relative; these are normal families. Thus, as compared to clinic families, these families probably would be described as midrange-balanced.)

Stress and strain were evident at all phases of the family life cycle; however, the type of stress varied as a function of the developmental level of the family. Overall, families reported more stress during adolescence than at any other time. Specific stressors

include intrafamily strains (30%)--i.e., conflict between children and parents, more chores that do not get done, etc.--financial strains (60%) and work-family strains (10%).

It was hypothesized that high functioning families at the adolescent stage would fall into the balanced types. For the most part, this hypothesis was confirmed. 45% of adolescent families fell into quadrant III--lower adaptability and cohesion--and about 28% were in quadrant II--high adaptability and low cohesion. Balanced types were clearly more functional. They were characterized by the highest levels of marital and family strengths, the lowest levels of stress and the highest levels of marital and family satisfaction. Among their strengths include higher reported levels of family pride and accord. Further, adolescents in balanced families believed they had good communication with their parents.

Balanced families also tend to emphasize extrafamilial contacts. They tended to be more religious, yet spend less hours per week in active church functions. They reported enjoying friends, relatives and personal pursuits.

In summary, the findings support the notion that adolescence is a time of great stress and strain in the family; however, many families possess strengths and skills which allow them to manage the new changes. In particular, balanced types--high or low on adaptability and low on cohesion--appear to function most optimally. Family ties are allowed to lessen so that individual members can attend to personal growth activities. In these families, communication is good.

Unfortunately, Olson and McCubbin do not relate their findings to outcome variables--i.e., school performance, drinking, antisocial

behavior, etc. Nor do they discuss differences between the families of male and female adolescents. However, their findings provide a very rich understanding of the family environment with adolescent children.

Many other studies address the issue of family correlates of adolescent functioning, albeit in a less sophisticated manner. Westley and Epstein (1969) studied 1970 college students and 88 families in Canada. They focused on problem-solving skills, power, authority, and roles. They found that families which encouraged autonomy, or a diversity in roles, had significantly more emotionally healthy adolescents. Parental marital structure was also related to child emotional status. Children from mother-dominated and father-dominated homes had more emotional problems and fewer strengths, whereas children from father-led and democratic families had few problems and more strengths.

In a similar study, Balswick and Macrides (1975) asked 417 college students to describe their adolescence--rebellion, marital happiness, control and division of authority. They found that rebellion occurred in patriarchal-unhappy, patriarchal-very restrictive, and patriarchal-very permissive family types. Thus, they concluded that a family's choice of a restrictive or permissive style was less important than the extent to which it exercised these styles. They also noted that many respondents reported only mild rebellion--65% male and 56% female--dispelling the notion of adolescence as a period of storm and stress.

Schvanveldt (1973) conducted a study with Mormon families containing an adolescent member age 12 to 15. He found that the most common areas of conflict were (1) performing chores, (2) use of time,

and (3) expenditure of money. The youngsters expressed a desire to have more communication with their parents, yet fewer rules and regulations. The male adolescents did not differ from the females. Landis (1954) added further support for the notion that adolescents want a more active role in decision-making. Authoritarian homes were associated with more adolescent-parent conflict than were democratic households. In authoritarian homes, adolescents reported interference with social life, a lack of voice in decision-making and a lack of authority as problem areas.

On the other hand, a certain degree of family control and regulation is needed to govern adolescent behavior. Jessor and Jessor (1974) studied the association between maternal ideology (in the areas of religion, employment and tolerance for deviancy), control, and affectional ties with adolescent involvement in problem behavior. They discovered that an inverse relationship between maternal conventionality and the degree of problem behavior. Further, the presence of clear rules and regulations were also associated with lower levels of problem behavior. Affectional ties proved to moderate this relationship for females only.

Empirical findings with clinical samples of adolescent families. Jacob (1975) reviewed research utilizing the behavioral observation methodology with disturbed (schizophrenic and non-schizophrenic, disturbed) families. The purpose of the review was to test the hypothesis that variables in the larger social environment of the family are predictive of individual pathology in adolescent children. In 1958, Behrens and Goldfarb published the first observational study. Since that time, Jacob found 57 articles. He divided his review into a

discussion of the following family environment variables: conflict, dominance, affect and communication clarity. Separate results were presented for schizophrenic (SF) and non-schizophrenic, disturbed (DF) families. A summary of his findings are as follows:

(1) Conflict

a. SF: Normal families (NF) interrupted more than SF in the direction of parent to child. Three studies indicated greater disagreement in SF, one in NF. Much to his surprise, Becker (1969) also found that clinic families exhibit less conflict. After controlling for frequency of speaking, the relationship was insignificant. Therefore, he urges that this variable be taken into consideration with direct observation studies.

b. DF: 23 comparisons yielded very mixed results; ninewere insignificant and the restwere discrepant.

(2) Dominance

a. SF: 17 comparisons;one study portrays the SF father as more dominant; 4 others portray the NF father, SF mother and NF child as dominant. The rest of the results are mixed.

b. DF: 44 comparisons yieldedtwo trends: (1) NF fathers have more influence over their children than DF fathers, and (2) NF are more differentiated.

(3) Affect

a. SF: Out of 32 comparisons, half were insignificant. The remaining comparisons were mixed, depending on whether there is a well child in the family.

b. DF: Out of 33 comparisons, 16 were insignificant. The remaining studieswere split between viewing problematic families as having more or less negative affect.

(4) Communication

a. SF: Generally SF produced less clear communication

b. DF: The majority of 44 comparisons were insignificant. Where differences emerged, NF fathers and DF mothers engaged in more simultaneous speech.

Jacob concludes that there is not enough consistent evidence to accept the popular notion that a disturbed adolescent is merely a reflection of a disturbed family system. However, he does note that there are many methodological difficulties which make it cumbersome to compare studies. Sophisticated analytic procedures, such as meta-analyses, can be employed to interpret large numbers of findings in a more systematic manner than mere substantive comparison of findings.

Several studies compared family climate variables in a nonclinical, yet problematic population of adolescents. Russell (1980) studied the families of 14 to 17 year old females on the dimensions of cohesion, adaptability, creativity and support. He used both interview measures and direct family observations of a game task. During the game, a conflict situation was introduced. The conflict could only be resolved if the family allowed the adolescent to develop a solution (measure of family organization). The findings indicate that girls who

have a history of runaway behavior came from families that they perceive as extreme on the dimesions of cohesion--very high or very low. High functioning families were more flexible, allowing the adolescent to assume an active role in decision-making. Further, they were more supportive and creative. Similarly, VanderVeen (1976) discovered that disturbed families exhibited fewer coping strategies, less family integration, and lower family unity than their nondisturbed counterparts.

Bell and Bell (1982) conducted an ego functioning evaluation of 283 high school girls, ages 15 to 17. They chose the higher and lower 15% to be involved in a subsequent family evaluation. The Family Environment Scale (FES) was used to assess family climate. The results indicate that the high functioning adolescents had families who were more flexible and trusting. They were also less likely to be triangulated in parental conflicts. Like the literature on nonclinical families, the clinical literature suggests that dysfunctional families exhibit either excessive or deficient cohesion and organizational control, and do not allow the adolescent to assume an independent identity.

An important point to keep in mind is that questionnaire and interview studies may present different pictures of the family environment depending on which family member is doing the reporting. As was previously noted, Olson and McCubbin (1983) found that adolescents did not perceive their families in the same way that their parents did. They tended to see less autonomy, more conflict, and less cohesion. In another study, Novak and VanderVeen (1970) found that the normal siblings of disturbed adolescents perceived fewer family

problems than the identified patients. In fact, the normal siblings did not differ in their perceptions of family difficulties from children from nondisturbed families. However, these siblings did describe their families as being more task-oriented and less pleasure-oriented than children from nondisturbed families. Again, disturbed children described their families as dependent, conflicted, and less cohesive. Thus, it seems that although the overall picture may vary between family members, families with dysfunctional adolescents are described in fewer positive ways.

In comparing the findings from both sets of data--clinical versus nonclinical populations--there seems to be evidence for thehypothesis that families that are not able to accommodate to the autonomous strivings of their adolescent members will have a negative impact on the child's overall functioning--reflected in lower self-esteem, more stress, poorer school performance, a more negative view of the family as a source of support, or greater misbehavior. Because studies reviewed herein are correlational, it is not clear if the adolescent overtaxes available family resources by presenting the family with excessive needs, or if the family is simply unable to meet the normal level of adolescent needs. What is clear is that there is a wide variation in family environments, and that these environments can be related to both successful and unsuccessful mastery of adolescent age-appropriate tasks. Families who exhibit a moderate degree of cohesion, organization and control, have lower levels of conflict, and allow more room for personal growth appear to be associated with adolescents who possess greater ego resources. Further, in our discussion of adolescent identity formation, it was argued that higher

levels of ego functioning indicate a more successful resolution of identity crises (Erickson, 1959). It also follows that adolescents who possess more ego resources will be better equipped to negotiate issues related to their values and behaviors in areas associated with their impending adult status.

Statement of the problem. In every society, there are specified activities which are associated with adult status. Margaret Mead (1949) notes that other cultures provide much clearer guidelines for when and how an adolescent makes the transition into adulthood. American culture, on the other hand, tends to have fewer events which mark this transition--rites of passage--and extends the childhood/dependent years for a longer period of time. However, there are certain behaviors, for which there appear to be a social consensus, that are representative of adult status. These include drinking, driving, dating, becoming sexually active, cigarette smoking, some forms of academic achievement, and obtaining a job. The first two activities, drinking and driving, also carry legal specifications of who may engage in them. Thus, there is a very clear distinction between "children" and "adults," even to the extent that under-age individuals are punished for participation in the activity.

Adolescent drinking and driving also have serious negative consequences. There is growing concern about the participation of adolescents in deviant drinking activities (Biddle, Bank, & Marlin, 1980; Braucht, 1982; Rachel, Maisto, Guess, & Hubbard, 1982). Further, automobile accidents account for more adolescent fatalities than any other health problem. When drinking and driving are combined, the result is frequently a hazardous one: alcohol is thought to be

involved in 50% of all highway accidents (Perrine, 1974; Lowman, 1983) and 60% of fatal accidents among teenagers (Douglass, 1982). Growing public awareness and concern about these social problems is reflected in the amount of governmental funds which have recently been appropriated to investigate and intervene in these areas. Thus, an understanding of factors influencing these behaviors extend far beyond academic interest.

The present study examines how one set of variables, family climate, relates to adolescent drinking and driving behaviors. These behaviors have been chosen because (1) they can be viewed as behavioral manifestations of an adolescent's struggle with separation and individuation issues because of their association with adult status, (2) they are easier to quantify and measure than other concepts which have been examined in the literature related to adolescent identity, and (3) they are significant social issues in their own right.

The investigation of family correlates of adolescent drinking and/or driving has been suggested by a number of researchers (Goldstein, 1972; Sobel & Underhill, 1976; Zucker, 1984). To date, there is a paucity of empirical data in these areas, especially related to driving. At best, studies tend to examine behavior-specific family correlates, such as parental modeling (Carlson & Klein, 1970; Jessor & Jessor 1977). Zucker (1979) developed a heuristic model for explaining changes in influencing structures affecting behavior over developmental time--see Figure 2. He then applied this model to the acquisition of drinking--see Figure 3--and driving behaviors--see Figure 4 (Zucker, 1984). The model calls for the examination of (1) sociocultural and community influences, (2) family of origin influences, (3) peer and

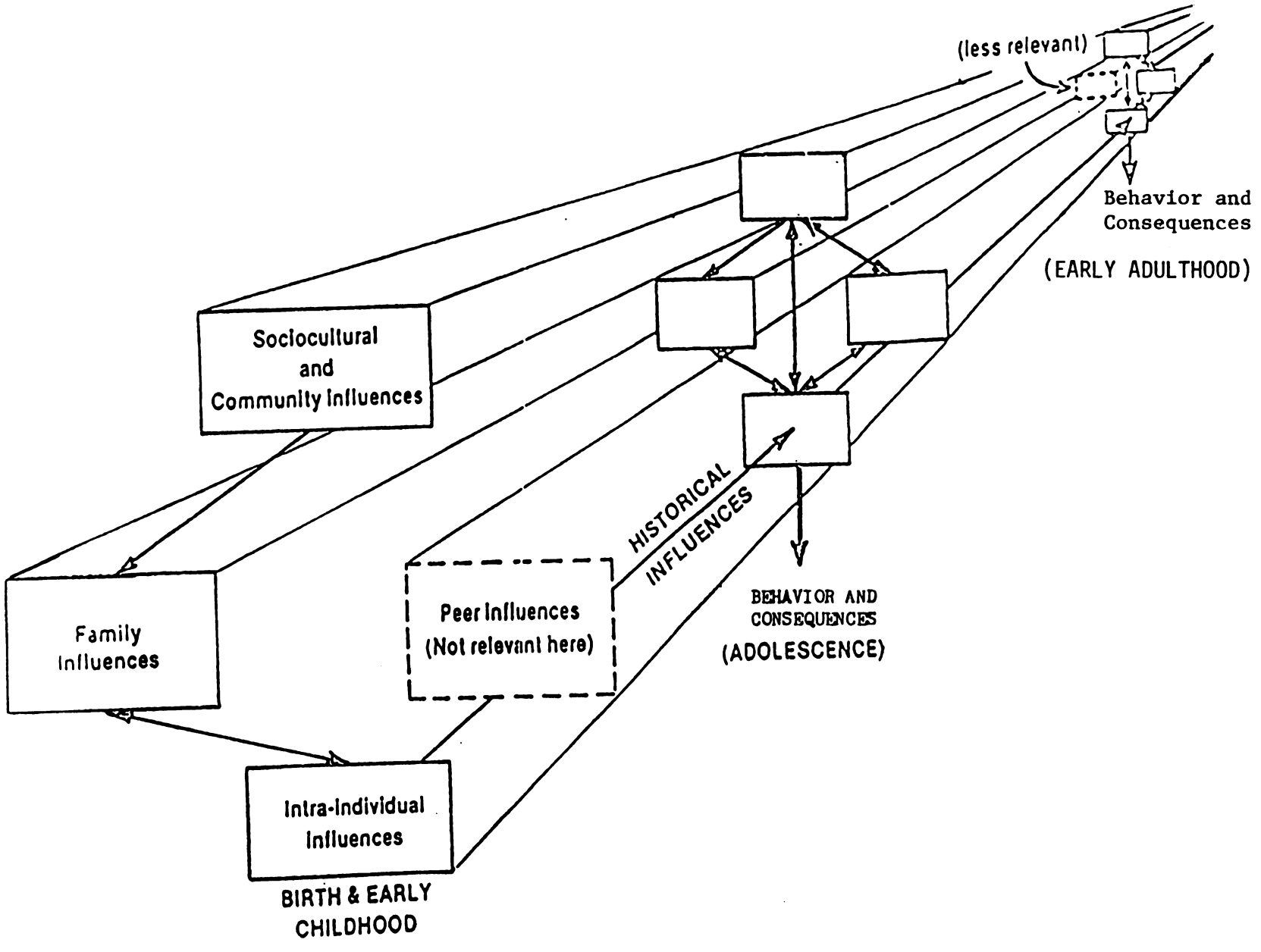

Figure 2. A Heuristic Model for Changes in Influencing Structures Affecting Behavior Over Developmental Time (After Zucker, 1979).

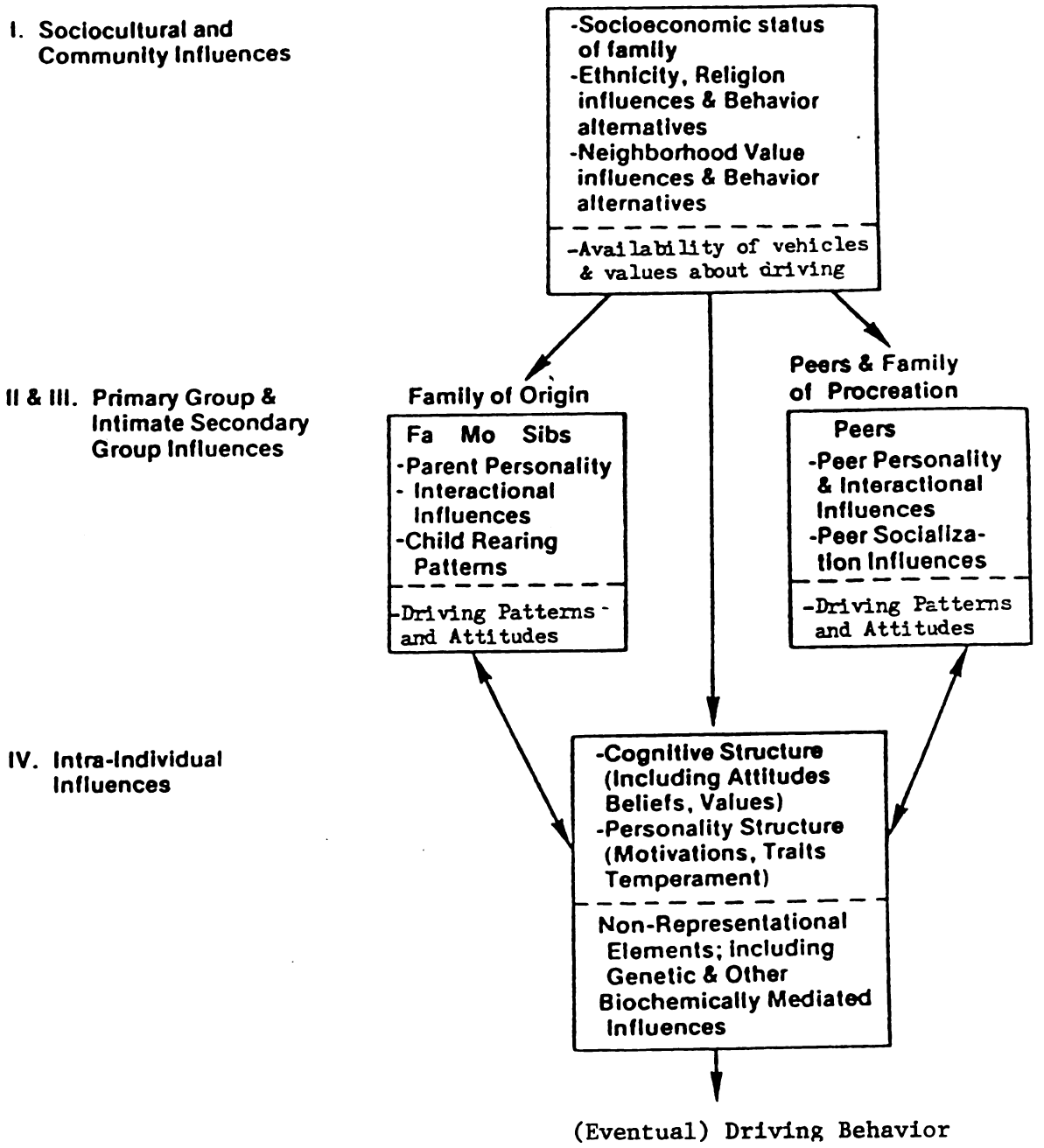

Figure 3. An Organizational Structure for Classes of Influences Upon Driving Behaviors (Zucker, 1984).

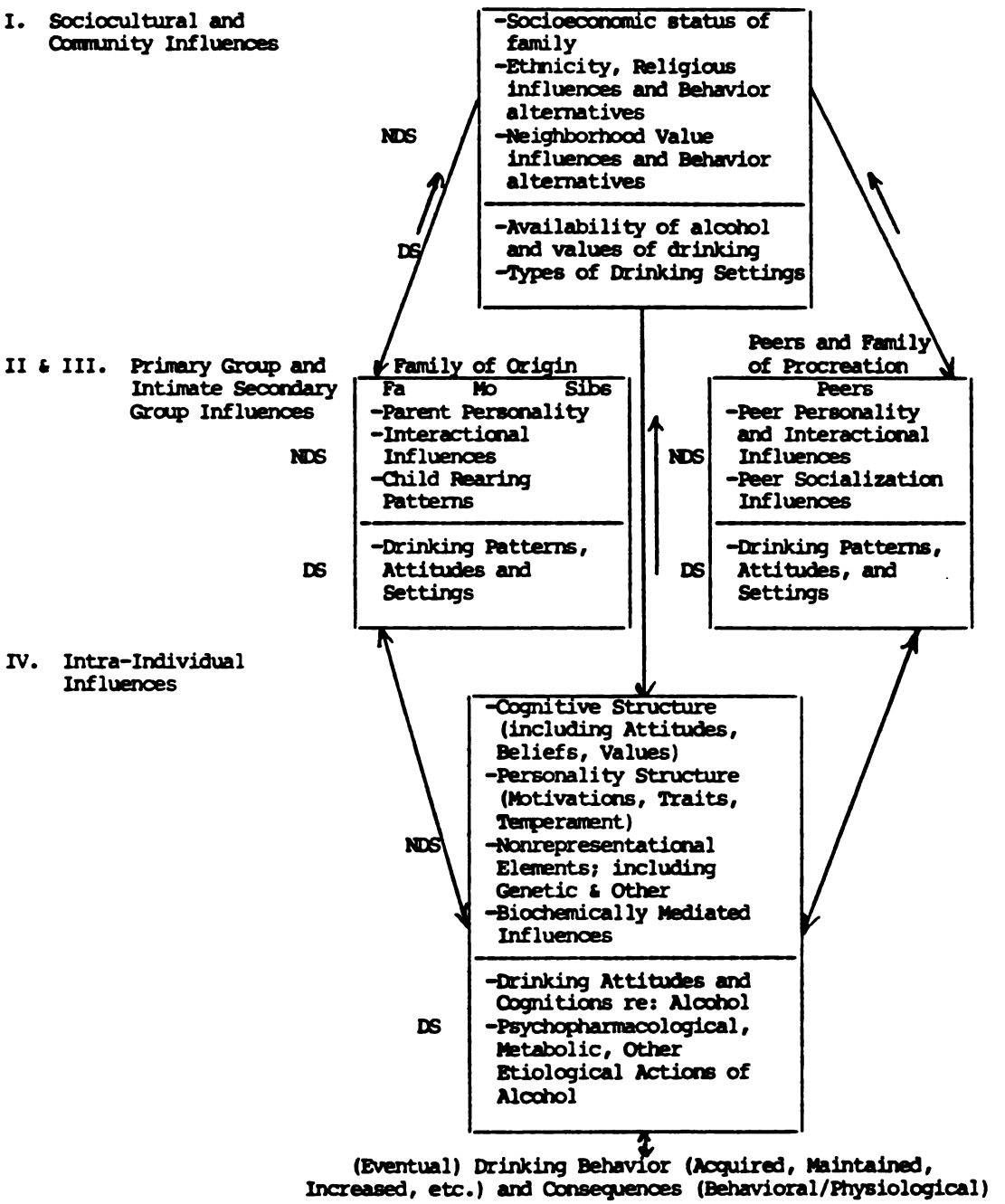

Figure 4. An Organizational Structure for Classes of Influences Upon Drinking Behavior

Note. Somewhat modified from Zucker (1979); DS refers to Drinking Specific factors, NDS refers to Nondrinking Specific factors.

family of procreation influences, and (4) intraindividual influences. Within each class of influences, it is posited that there are both specific and nonspecific variables. Parental modeling of drinking is an example of a specific, family of origin influence; family climate is a nonspecific, family of origin influence. Zucker (1984) notes in his review of youth, alcohol, and driving that "the most obvious and glaring omission is the comparative lack of attention to peer influences and family influences in mediating drinking-driving etiology." Thus, the significance of the proposed study is evident for both practical and theoretical purposes.

A thorough review of the literature on young drivers and adolescent drinkers is beyond the scope of this thesis. Because both areas are of significant social interest, the amount of work devoted to their study is enormous. However, several factors which are thought to affect each area will be mentioned in order to present a more complete view of the phenomenology of adolescent drinking and driving. Studies which address family correlates will be discussed in more detail. It is not the intent of this study to suggest that family variables are the only nor the most important factors related to adolescent drinking and driving. However, an understanding of their relationship will assist in clarifying a valuable component of the total picture.

Adolescent Driving and Family Correlates

The problem. Young drivers are overrepresented in accidents, particularly in fatal accidents, considerably beyond their proportion of the driving population. In 1973, they comprised 21.7% of the driving population in the United States, yet they were drivers in 36.3% of all fatal road accidents (National Safety Counsel, 1974).

Currently, they are still disproportionately represented among fatal accident victims (National Institute on Alcohol and Alcoholism, 1982; Insurance Institute for Highway Safety, 1984). Demographic statistics suggest that exposure factors--more driving at hazardous times--(Goldstein, 1972) and inexperience (Pelz & Schuman, 1971) mediate this relationship. However, there is mounting evidence that other, nondriving specific factors may also be involved in the driving patterns of young drivers. These factors have been referred to as "extra motives."

Substantive review. Black (cited in Goldstein, 1972) investigated responses from young drivers who were hypnotized during their interviews. He reported that many personal-emotional variables emerged and suggests that these may account for the disproportionate frequency of road accidents among youths. Although Black did not describe family relationships, his findings suggest conflict between these youths and their parents.

Pelz, Schuman and their associates (1971) found a cluster of extra-motivational factors to be related to the driving behaviors--accidents and violations--of adolescents. Included in this list are drives after drinking, speeds on highway, speeds in city, works excessively on car, races others, drives affected by passengers, drives to blow off steam, involved in fist fights, and thoughts of injury while driving. The only parent-related variable was "feels adult pressure." These authors convincingly argue that teenagers possess more of these extramotives than their adult counterparts.

Beamish and Malfetti (1962) compared two groups of adolescents matched on age, education, and miles driven annually. The first group

had been referred to the juvenile courts for two or more traffic violations. The second group was comprised of accident-free adolescents. Based upon psychological tests, the two groups differed on several emotional and family variables. Compared to controls, traffic violators: (1) exhibited an impulsive style, avoiding consideration of the effect of their actions on themselves or others; (2) tended to be in conflict with others, including those closest to themselves--e.g., they perceived their parents as imposing and restrictive; (3) were rebellious and selfish; (4) were lacking in self-confidence and exhibited poor self esteem, perhaps contributing to a need to compensate for these feelings of unworthiness by erratic and ill-considered actions; (5) reported that their parents and relatives were inactive in the community, producing children with a lessened sense of civic responsibility (reviewed in Goldstein, 1972).

In a second study by Beamish and Malfetti, remediable traffic violators were compared to nonremediable violators. The remediables rated higher on sociability, social and physical activity, dependence on home--i.e., turning to family for guidance and support--and appreciation of the arts.

A study by Rommel (1959) provides more direct support for the hypothesis that youthful violators use driving as an activity in which to prove their adult status, or to compensate for feelings of unworthiness. They administered the Minnesota Multiphasic Personality Inventory (MMPI) and the Driver Attitude Inventory to accident-repeating and accident-free high school drivers. The repeater group exhibited higher scores on Psychological Deviancy (PD)--disregard for social mores--and Mania (MA)--excessive activity and enthusiasm.

With respect to driving, the repeater groups tended to view driving as a way to display confidence and to prove powerfulness despite danger indicators.

The antisocial aspect of young violators emerges in several other studies. Levonian (1969) studied 1080 driver education students and found that repeat violators tended to be oriented toward self-benefit at the expense of others. Further, they noted the rebellious attitudes presented by this group. Similarly, Goldstein (1972) concluded that there "are a cluster of personal variables which are correlated with crashes among young male drivers, labelled by such terms as anger-rebellion, hostility, argument, distraction, escape and competitiveness."

While some adolescents appear to be using their automobiles to release tension which may be due to frustrated independence strivings, there is also evidence that this group of youngsters is unable to achieve status from other activities commonly referred to as "rites of passage." Kraus, Steele, Ghent and Thompson (1970) gathered data on the backgrounds of 205 young drivers--under 21--who had recently had accidents, with 205 matched controls. They found significant differences in the areas of school achievement, cigarette smoking, employment and criminal behavior. Specifically, accident-prone individuals (1) had failed one or more grades, (2) became cigarette smokers at or before age 16, (3) secured full-time employment, exclusive of summer vacation, at or before 17 and before receiving a driving license, and (4) had been charged with a criminal offense exclusive of those related to driving.

In another study, Harrington (1971) found very similar results. This research effort represents one of the most extensive efforts to isolate biographical data which may be related to adolescent traffic problems. Three thousand to 8,000 males and 3,000 to 5,800 females were followed over a four-year period. High accident males--three or more violations (N=175)--and high accident females--two or more accidents (N=210)--were compared to accident free subjects. Interview data were obtained on a number of psychosocial variables, including family relationships. School records provided useful demographic information on school attendance, achievement, etc. The data were analyzed separately for males and females. Over 300 variables were tested and many proved to be significant. The findings most relevant to the hypothesis of this paper include:

Compared to the low-accident males, high-accident males:

(1) smoked more cigarettes, (2) less frequently were college students, (3) more frequently wanted to be race car drivers, (4) began dating at an earlier age, (5) rated their driving skill lower at ages 16 to 17, (6) completed less education, (7) played hooky in high school more often, (8) had their own cars with speed and custom accessories more often at ages 16 to 17, (9) got along less well with their parents, (10) received less parental approval of their friends at ages 16 to 17, (11) had mothers who lost their tempers more easily and who babied them more, (12) had consumed more alcohol before driving, (13) more frequently knew someone who smoked marijuana, (14) were more frequently in trouble with the law

after age 20, (15) more frequently drove when worried, and (16) more frequently drove to get away from people.

Compared to low accident females, high accident females (1) drove sports cars more frequently, (2) drove more miles in their lifetimes, (3) belonged to more clubs, (4) felt like smashing things less frequently, (5) had poorer relations with their teachers in high school, (6) played hooky more often in high school, (7) received less parental approval of their friends, (8) improved their driving more because they had been in an accident, (9) attended more car races, (10) drove more frequently to get away from other people or to cool down after an argument with someone, and (11) described themselves as more conventional, persevering, polished, self-controlled, friendly, decisive, orderly, sophisticated, and less frank.

The authors warn that because of the tremendous number of comparisons that were made, the results should be considered tentatively. At best, one can draw several hypotheses from this study. The results provide added support for the notion that at-risk males perceive their families as more conflictual and less able to meet their needs for separation and individuation. With these needs frustrated, they may turn to other "rites of passage" in order to assure their independence--i.e., early dating, drinking, and risky driving. More legitimate sources of achievement, such as school, are not available to them. Hence, these individuals may be at risk for "exaggerating" their behavior in the driving and drinking realm. For females, the picture is less clear. There is evidence of some family tension and turning to

the peer group, but several of the other variables did not differentiate between the at-risk and control groups. Perhaps females chose activities other than driving in which to assert their independence. Or perhaps they do not experience dependency frustrations as early or as intensely as males, since it is more socially acceptable for females to remain dependent.

As the preceding review indicates, there is a significant paucity of data which examines the family environment as a central factor influencing adolescent driving behaviors. At most, family variables are considered as a secondary concern. Only one study has made the family its primary focus. Sobel and Underhill (1976) found that poor relationships with one's parents, as well as an unstable marriage, are related to a greater frequency of alcohol-related driving and automobile accidents (cited in Zucker, 1984). Clearly, there is a need to address this issue directly.

Methodological considerations. In reviewing studies on youthful traffic violators, several problematic methodological issues emerge. First, the definition of "youthful" varies widely among studies. Some studies define youthful as 24 and under, while others focus specifically on high school drivers. From a developmental perspective, the emotional and social issues vary considerably from 16 to 19, versus 20 to 24 year olds. From a family life spanperspective, the first age group is in the "adolescent" phase of development, whereas the second group is in the "launching" stage. Olson and McCubbin's (1983) work found differences in family climate variables between the two groups. Thus, more homogeneous group comparisons might be valuable.

The second issue deals with sex. A great deal of traffic research deals with male subjects. This focus may reflect the reality of who is involved in more traffic violations and accidents since 85.6% of drivers of all ages involved in fatal accidents are male (Accident Facts, 1971). This difference is explained by the fact that males drive many more miles than females. As female driving hours increase, it is expected that they will be involved in more accidents. An alternative explanation is that the deviance process is qualitatively different between males and females and reckless driving is only one form of deviant behavior. Some studies fail to report separate analyses by gender. The ones that do tend to find different profiles for males and females, suggesting the utility of this approach.

Finally, Klein (1972) points out that violations and crashes are not highly correlated. He further explains that this finding may be due to the fact that crashes are low frequency events and that many violators are not apprehended. However, data resulting from these two types of dependent variables should not automatically be considered equivalent.

Adolescent Drinking and Family Correlates

The problem. In a study of over 900 adolescents who took part in a national survey (mean age=16 years), it was determined that 60% of adolescents are drinkers--infrequent, light, and moderate--and that 6% are heavier drinkers. Sex and age variables were found to mediate this relationship. In almost all age groups, males consume greater quantities of alcohol than females. Moreover, within each sex, the percentage of drinkers increases with age. Figure 5 presents the specific percentages of drinkers by age and sex (reprinted from Zucker

Groups	Abstainers	Infrequent Drinkers	Light Drinkers	Moderate Drinkers	Moderate/ Heavier Drinkers	Heavier Drinkers	
			Drinking Level Groups				
Defining Criteria	Don't drink or drink less than once a year	Drink once a month at most and drink small amounts per typical drinking occasion	Drink once a month at most and drink medium amounts per typical drinking occasion or drink no more than 3-4 times a month & drink small amounts per typical drinking occasion	Drink at least once a week and small amounts per typical drinking occasion or 3-4 times a month and medium amounts per typical drinking occasion or no more than once a month & large amounts per typical drinking occasion	Drink at least once a week and medium amounts per typical drinking occasion or 3-4 times a month & large amounts per typical drinking occasion	Drink at least once a week and large amounts per typical drinking occasion	
Age Groups - Boys							Row N
13	69.9	17.8	8.2	1.4	1.4	1.4	73
14	46.4	20.3	13.0	10.1	8.7	1.4	69
15	39.0	13.0	23.4	15.6	7.8	1.3	77
16	34.4	14.0	19.4	10.8	15.1	6.5	93
17	23.2	9.8	13.4	17.1	20.7	15.9	82
18	8.0	6.8	18.2	14.8	31.8	20.5	88
All Ages:	35.5	13.3	16.2	11.8	14.9	8.3	482

(Figure continues)

Groups	Abstainers	Infrequent Drinkers	Light Drinkers	Moderate Drinkers	Moderate/ Heavier Drinkers	Heavier Drinkers	
Age Groups - Girls							Row N
13	77.9	11.7	9.1	0.0	0.0	1.3	77
14	53.3	16.0	18.7	9.3	2.7	0.0	75
15	42.4	8.2	27.1	12.9	8.2	1.2	85
16	33.3	16.0	23.5	9.9	9.9	7.4	81
17	39.5	8.6	28.4	7.4	12.3	3.7	81
18	27.4	15.5	19.0	15.5	16.7	6.0	84
All Ages:	45.1	12.6	21.1	9.3	8.5	3.3	483
All Ages:	40.3	13.0	18.7	10.6	11.5	5.8	365

Note. Row totals do not necessarily add up to 100 percent because of rounding.

In the above definitions, small, medium, and large amounts refer to one or less drink per drinking occasion, 2-4 drinks per drinking occasion, and 5 or more drinks per drinking occasion, respectively.

Percentages are based on observed frequencies; because the total sample does not accurately reflect the sex distribution of the national population, these figures are sample percentages, rather than weighted national percentages.

Figure 5. Defining Criteria for Adolescent Drinking Levels, and Percentages of Respondents in Each Category—By Sex and Age for Total Sample (Zucker, 1984).

& Harford, 1983). It is clear that drinking, especially among males, is not a statistically deviant activity. However, from a legal and social perspective, drinking is an activity which is reserved for adults and is considered inappropriate for teenagers.

The cause of the recent social concern regarding adolescent drinking stems from several sources. First, as was noted in the last review section, alcohol is implicated as a contributing factor in the nation's number one health problem for adolescents--driving fatalities. Approximately 60% of all fatal motor vehicle accidents involve alcohol in the 16 to 22-year-old age group. Compared to adults, few teens report driving while under the influence of alcohol; however, when they do drink and drive, they are more likely to be involved in a traffic accident at lower blood alcohol level (Klein, 1972). Secondly, adolescent problem drinking has been linked to a number of forms of deviant or antisocial behavior among youth (Cahalan, 1970; Ricks & Berry, 1970). Finally, adolescent problem drinking has been associated with adult alcoholism and problem drinking (Robins, 1966; Blane & Chafetz, 1979), and also with use of other drugs (Braucht, 1982).

Substantive review. In trying to determine the etiological variables associated with drinking, particularly problem drinking, a number of investigators have called for the application of sophisticated theoretical and methodological designs. Zucker's developmental model was presented earlier in this review. Jessor and Jessor, in their triethnic study, developed a similarly complex formulation of the problem.

A thorough review of the adolescent drinking literature is clearly beyond the scope of this thesis and has been quite adequately presented elsewhere (Zucker, 1976; Zucker & Noll, 1982; Zucker, 1984). Thus, the present review will focus on family environment variables as they have been related to adolescent drinking. Other related variables will be briefly mentioned, since their consideration provides a conceptual richness that extends beyond the narrow focus of family environment. Three sources of data will be reviewed. Two research groups, Zucker (1975, 1973) and Jessor and Jessor (1968; 1970; 1973; 1975) have been major motivators in the area of adolescent alcohol use. Thus, both of their studies will be presented separately. The third source of information comes from several longitudinal studies which associate adult problem drinking with earlier family, social, and emotional precursors. Jessor and Jessor emphasize the normal developmental process of becoming a drinker, while the other studies emphasize the pathology involved with problem drinking. Although the focus of this study lies with the former conceptualization, the problem-oriented studies are included because they identify family environment characteristics which are likely to be associated with one aspect of family functioning; namely, obvious dysfunctional family functioning. This study will not attempt directly to separate alcoholism-prone adolescents and families from other types of drinkers and drinking families; the two groups will be studied together. Conceptually, however, it is useful to keep the distinction in mind. It may be that families with alcoholism-prone adolescents exhibit a more severe pathology, and that their failure to meet the developmental needs of their children is not limited to the adolescent period, but has

occurred throughout the family life cycle. Longitudinal work is needed to test this hypothesis.

Zucker's model proposes a developmental perspective to the etiology of drinking among adolescents. Initially, the model focused on family organization and affectional ties in order to explain adolescent problem drinking. When it became clear that empirical data supported multiple causality, three other dimensions were added--peer, intraindividual, and sociocultural influences. Although the model attempts to explain a normal developmental phenomenon, its emphasis is on predicting and understanding problem drinking. It is hypothesized that problem drinking is best understood within the context of antisocial behavior. (For a review of the Zucker model, its advantages and limitations, see Noll, 1980; 1983). Consequently, the majority of research attempts to isolate variables which could differentiate problem adolescent drinkers from nonproblem adolescent drinkers.

A major advantage of Zucker's work is that he investigated drinking related variables separately for males and females. The findings will be presented separately. Seventy-five males and 75 females were selected from junior and senior high school students in order to represent the entire drinking spectrum. Data from in-depth interviews, psychological testing, and personal diaries was gathered over a four-week period. Two and a half years later, original freshmen and sophomores--then juniors and seniors--were retested. In addition, their family members were contacted and asked to participate in the study. The results described herein are those from this latter tesing period (Zucker & Barron, 1973).

Among males, there was strong evidence for the initial theory suggesting an association between general antisocial behavior and problem drinking. For example, on three measures from the California Psychological Inventory, heavy and problem drinking males differed from controls. Heavy and problem drinkers reported less home stability, optimism, and observance of convention. There was no evidence to suggest that problem and heavy, nonproblem drinkers should be conceptually independent categories. Both groups differed from controls on many antisocial and asocial measures, but they did not differ from each other.

Several findings emerged with respect to how the parents' own drinking practices relate to their child's drinking habits. Parental intake was found to be a more salient predictor of the adolescents' drinking amount and drinking practices than was parental problem drinking. Secondly, and somewhat surprisingly, it was discovered that both maternal drinking and concern about her own drinking practices were better predictors of adolescent male drinking patterns than were the father's drinking related behaviors. The authors point out that little is known about female drinking practices and that this area warrants further investigation.

Mothers' attitudes and behaviors regarding discipline and affectional ties also appeared to be more closely related to child drinking than the fathers' attitudes and behaviors. With regard to affective responsitivity, mothers reported themselves as having been more openly rejecting and ambivalent about expressing concern through discipline. Sometimes they would punish by depriving the child of human companionship; at other times they would be overprotective.

From the adolescents' point of view, their behavior was less related to their mothers' attitudes and values than to their fathers' behavior. They perceived their fathers as affectively distant and unrewarding. They also felt their fathers failed to attempt to socialize their behavior while they were growing up.

The family atmosphere measures indicate that the global family situation is tense and that it is characterized by a great deal of open rebellion and resentment of parental intrusions.

The authors summarize the findings by concluding that there "has been a failure of the affective environmental supports that provide for the development of solid positive identification with parental figures. Thus, by adolescence, the critical factor is this separation-escape, partly by way of alcohol abuse." It may be that such families represent the extremes in terms of adolescent separation conflicts and family climate deficits. It would be interesting to determine whether less problematic drinkers also perceive their families to be affectionally and organizationally deficient, albeit in a less serious way. If there is a difference in family climate, is the distinction a qualitative or a quantitative one?

Among females (Zucker & Devoe, 1975), the authors found similar findings to the pattern noted for males. Many of the indices of antisocial behavior were related to heavy and problem drinking; however, the correlations were somewhat lower.

The family environments of the girls also appear to be conflictual and hostile. The differences lie in the degree of perceived anger and rejection and the relative influence of parental variables on the adolescent drinking practices. The mothers of drinking females report

more open rejection, non-nurturance, and less companionship than do low or nondrinkers. Further, many mothers report being physically absent from the home for extended periods of time. Fathers report less consistent discipline with less affiliative companionship, and more antisocial behavior. The girls' perceptions of their parents/families support the accuracy of the parents' reports. In sum, both male and female problem drinkers come from dysfunctional households, with girls experiencing more parental rejection and sociopathy than their male counterparts.

Jessor and Jessor (1968; 1970; 1973) were interested in understanding the developmental processes which account for changes in antisocial behavior. Extensive drinking is but one of several deviant behaviors that they examined. According to their theory, general antisocial behavior increases during periods of transition. Personal and sociocultural variables interact to determine the expression of deviance in any given individual.

To test their model, they identified several variables within three major explanatory systems--personality, the perceived social environment and behavior. Figure 6 lists the types of variables which were examined. Four hundred thirty two subjects (188 boys and 244 girls) from grades seven to nine were studied over a three-year period. The above mentioned variables, as well as drinking habits, were examined. Subjects were classified into one of five transition groups: I. abstainers; II. last year transition group; III. second year transition group; IV. first year transition group; and V. pre-study transition group.

PERSONALITY SYSTEM

- Personal Instigations
  - Value on academic achievement
  - Value on independence
  - Independence-achievement discrepancy
  - Expectations for academic achievement
- Personal Controls
  - Tolerance of deviance
  - Religiosity
  - Disjunction of drinking functions

PERCEIVED ENVIRONMENTAL SYSTEM

- Distal Environment
  - Parent-friends compatibility
  - Parent-friends influence
- Proximal Environment
  - Family approval of drinking
  - Friends' approval of drinking
  - Friends' drinking pressure
  - Family models for drinking
  - Friends' models for drinking
  - Friends' pressure for marijuana use
  - Friends' models for marijuana use

BEHAVIOR SYSTEM

- Problem Behavior
  - General deviant behavior
  - Marijuana behavior involvement
- Conventional Behaviors
  - Church attendance
  - School performance

DEMOGRAPHIC VARIABLES

- Age
- Father's education
- Mother's education
- Family SES

Figure 6. Jessor and Jessor (1978): Variables examined in their study of adolescent transition to alcohol use.

The results support the hypothesis that there is a constellation of personality, perceived environment, and behavioral attributes which exist prior to the onset of drinking and which are correlated with initiation into drinking. For example, group I scored highest on achievement-orientation, indicating greater conventionality. Group V scored the lowest on this dimension, indicating a disinterest in socially prescribed modes of adolescent status. Groups II to IV fell in between these two extremes, in the predicted numerical order. A similar ordering of the groups occurred with several other variables. Abstainers were described as having the least instigation to problem behavior, the strongest personal controls against transgression, a perceived environment that provides the least approval and opportunity for drinking and the least amount of general deviance. In contrast, the group that reported drinking at or before the beginning of the study exhibited the greatest level of deviance, few controls against transgression, much opportunity, support and modeling of drinking, and greater problem behavior. The profiles of the other groups fell within these two extremes, in the predicted order. When all the variables were combined, they accounted for 37% of the variance between groups among girls and 47% of the variance among boys.

Demone (1975) found similar results utilizing a cross-sectional methodology. Compared to abstainers and normative drinkers, pathological drinkers were more likely to come from divorced families with a parent who has or has had a drinking problem, or a parent who is ardently opposed to drinking. These adolescents were more likely to spend time with and rely on peers, engage in antisocial behavior, date, work, skip school and repeat grades. Further, they reported drinking

at an early age--i.e., between ten and 12 years of age. Demone concluded that this group of adolescents seemed to be rejecting adult sanctioned forms of adolescent behavior and adopting adult roles and privileges.

The major strength of Jessor et al.'s work lies in its longitudinal focus in accounting for "normal" drinking transitions between adolescents. The family variables that were studied relate more to drinking specific variables, as opposed to the Zucker study, which focused more on family climate variables. Jessor et al.'s study suggests that parental modeling of drinking behaviors and approval of adolescent drinking are related to the earlier experimentation with these behaviors. In another study, Biddle, Bank and Marlin (1980) found that parental drinking patterns had little influence on specific adolescent drinking practices. Rather, parents affected their adolescents through normative standards and peers through modeling behavior, indicating the different kinds of relationships an adolescent has with his parents and peers. What is clear is that adolescents who drink excessively (Zucker) and/or earlier (Jessor) have ample access to alcoholic beverages and modeling of drinking behaviors in their environments. Perhaps such factors are necessary but not sufficient in understanding the phenomenology of adolescent drinking.

Several longitudinal studies shed light on family variables from a more pathology-oriented framework (McCord & McCord, 1960; 1962; Robins et al., 1962; Robins, 1966; Jones, 1971; Berry, 1967; Ricks & Berry, 1970). Subjects were initially contacted as children and then followed up a number of years later. Although there is great variability among studies--i.e., subject selection, subject characteristics, definition

of "problem drinkers," instrument chosen, method of follow up, etc.--there are several similarities which allow for tentative generalizations: (1) similar categories of the family environment were examined--affectional interaction, parent reward structure, parental modeling; (2) control groups of nondrinking, disturbed children were present (in addition to several normal controls); and (3) identified adults were diagnosed as alcoholics. These studies are reviewed by Zucker (1976; 1979; 1982).

With respect to family environments, the longitudinal studies indicate that there are distinct deficits in the affectional ties between family members, particularly within the marital dyad. Often such difficulties are apparent within the parent-child relationship as well. Whereas the father is portrayed as more consistently absent, the mother alternates between overinvolvement and open rejection. Not surprisingly, many mothers were found to have emotional disturbances and to resent their role within the family. Although the conflict within these families appears to be great--i.e., high rates of verbal and physical assault--the discipline practices are more adequately described as inconsistent than as harsh. Combined with inadequate discipline, the parents exhibit greater sociopathy and fewer ideological controls--i.e., adherence to religious or moral beliefs. Thus, although these studies are describing the family characteristics of one group of drinking adolescents, those who become adult alcoholics, the findings provide tentative support for the proposed model of dysfunctional family interactions. In order to account for the spectrum of normal to excessive drinking among adolescents, greater specificity with a representative population is needed.

Drinking and Reckless Driving: Common or Unique Problems?

According to the National Highway Traffic Safety Administration's National Center for Statistics and Analysis, teenagers constitute about eight percent of the driver population and account for approximately six percent of the vehicle miles travelled; however, statistics indicate that they are not only disproportionately represented among accident-involved drivers, but that they are also more likely to be involved in drinking related accidents. Specifically, in 1982 15% of all alcohol-involved drivers in accidents were teenagers (statistics summarized in Vegega, 1984). When involved in an alcohol-related accident, teenagers are generally found to have lower blood alcohol levels than their adult counterparts. Thus, the combination of excessive drinking and careless driving appears to be a special problem for teenagers. The question remains as to whether these two areas share enough common etiological components be more accurately considered a single phenomenon. An inspection of the literature suggests that the answer may be both yes and no. That is, within a subset of the population, there are aspects of excessive drinking and reckless driving which could be grouped into a single category. On the other hand, in the remainder of the population, drinking and driving related factors are clearly separate phenomena.

Specific examination of the factors which can distinguish problem drinkers and drinking-drivers during adolescence is lacking. The majority of evidence appears to come from the adult literature. Selzer, Vinokur, and Wilson (1977) conducted a psychosocial comparison of drunken drivers and alcoholics. They found that compared to controls, alcoholics were significantly different on virtually every

variable. Specifically, they drank more frequently and greater amounts per drinking occasion, drank more to relieve tension, experienced more troublesome and uncomfortable effects from drinking, had more stress in their personal and professional lives, and participated in fewer non-drinking social events. Men arrested for drunken driving were distinguishable from both controls and alcoholics on the above-mentioned variables. They appeared to fall somewhere between the control subjects and the alcoholics. Based upon these results, the authors concluded that alcoholics and drunken drivers are not homogeneous groups, but may share features which distinguish them from the larger population, differing from each other primarily in degree of pathology.

In a similar study, Clay (1974) provided evidence which supports the notion that problem drinking is largely a separate phenomenon from problem drinking and driving. She compared alcoholics and DWI offenders to controls and to each other. Although alcoholics were involved in more drinking-related accidents, they were less risky drivers. That is, the number and severity of their driving offenses were less significant than the offenses of the DWIs. In fact, the majority of the DWI group's offenses had no alcohol involvement.

Further examination of the DWI group led Clay to conclude that there may be a section of the population which is characterized by an aggressive irresponsibility which permeates many behavioral realms, including drinking, driving, property management, interpersonal skills, and compliance to societal norms and rules. To a much greater extent than alcoholics, DWI offenders had been processed by the legal system

for violations which ranged from destruction of property to criminally assaultive behavior.

Other authors have proposed theories of deviant behavior which claim that there is a single dimension which underlies various manifestations of antisocial behavior. For example, Donovan and Jessor (1985) conducted a factor analysis on a diverse group of problem behaviors--problem drinking, illicit drug use, delinquent-type behaviors, and precocious sexual intercourse--which were assessed on both an adolescent and a young adult sample. Their results support the notion that these behaviors may be accounted for by a single syndrome. Certainly, reckless driving, though not included in this study, could be considered a form of antisocial behavior in light of the aggressive qualities noted by many authors.

Though the questions regarding the commonality of these two problematic behaviors are far from resolved, future work should keep in mind that there are likely to be similarities among a subset of the population. The task which remains is to find out which factors subsume the commonality and how these factors differ in the population. In this study, it is hypothesized that the spectrum of drinking and driving behaviors are linked because of their value as a rite of passage, and that family system processes operate to differentiate the successful management of these behaviors among adolescents--i.e., to distinguish between abstainers, normative, and problematic drinkers, and between risky and normative drivers.

Application of a New Terminology

Examining the link between family influences and adolescent drinking and driving practices is an area which has not been given much

attention in the past, as is apparent from the preceding literature review. However, in addition to the general lack of attention, there is another problem which is preventing advancement in this area. When family influences are examined, they are not well conceptualized. The result of this practice is a collection of results which seem isolated from each other and somewhat trivial. What is needed is the application of a systematic theory for understanding family influences. A systems perspective provides such a theory.

As a function of utilizing such a theory, investigators would have a new terminology for discussing family influences, which includes concepts such as system relationships, individual growth, and system maintenance. Instead of addressing seemingly isolated behaviors, one can look at a host of behaviors which are conceptually related to a construct known to operate in family systems. In this study, the Family Environment Scale (Moos, 1974) has been selected as the tool which will measure three dimensions of family functioning--quality of interpersonal relationships, individual growth pursuits, and system maintenance techniques. The application of these concepts and this terminology to adolescent drinking and driving represents a vast improvement over the current state of affairs.

Significance of This Investigation

In determining the relative significance of any investigation, the contribution of the findings to three areas needs to be assessed: a) methodological significance, b) theoretical significance, and c) practical significance. This study has important implications for all three areas.

Theoretically, this study proposes a model which might account for some of the variation observed in adolescents' struggles with identity issues. It deals with both healthy and dysfunctional manifestations. The use of a family systems perspective will not only contribute useful information to the understanding of family process during the adolescent phase of development, but also provides a new framework for conceptualizing adolescent drinking and reckless driving.

The methodology of this study avoids a number of limitations noted with prior research. First, family climate is operationalized along several dimensions, using a standardized tool--the Family Environment Scale (FES) (Moos, 1974). Secondly, multiple measures of drinking and driving behaviors, and alternate definitions of what constitutes problems in these areas are incorporated. These two advantages allow for more direct comparability between this study and past studies. Third, by examining mediating variables--such as GPA, academic expectations, truancies, peer modeling, peer support, family support, and accessibility--the study will be able to make more precise conclusions about the relationship of family influences to other influences that the literature shows to be important. In this sense, the methodology is ecologically oriented, rather than arbitrarily focused on unitary constructs. Another methodological advantage is the use of sophisticated, multivariate techniques which allow for the interrelating of a greater number of variables while reducing the capitalization on chance findings. Finally, the design employs a normative population rather than a clinical population, allowing for greater generalizability.

Practically, by operationalizing the processes of separation and individuation into drinking and driving related variables, this study will provide useful information for researchers and clinicians who are interested in these major social problems. Moreover, by focusing on the family environment, the belief in the individual pathology of adolescents might be lessened. Such an effort will be worthwhile in providing practitioners with alternative avenues for intervention.

Hypotheses

The general premise of this study is that adolescents who perceive their families as less functional will be more likely to force their way into adulthood by exaggerating behaviors considered to be rites of passage, such as drinking and driving. Within the context of this study, exaggerated drinking refers to individuals who consume large quantities of alcohol on a more frequent basis, resulting in more problems associated with their drinking. Exaggerated driving refers to individuals who have been involved in any automobile accident as drivers or who have received frequent moving violations. The findings of Olson and McCubbin (1983) suggest some characteristics which distinguish functional from dysfunctional families during adolescence. Specifically, less functional families appear to be at the extremes on cohesion and adaptability. Moreover, Olson and McCubbin found that less functional families express greater overall conflict and less commitment to or involvement in individual growth-producing activities.

In the present study, the Family Environment Scale (FES) was utilized. Although it cannot be assumed that the FES and Olson and McCubbin's instrument,FACES, measure the same constructs and hence will produce identical results, several of their scales appear to be theoretically similar. For example, the items on the cohesion scale of the FACES seem to be similar to the cohesion and expressiveness scales of the FES. Further, the FACES adaptability scale appears to be similar to the organization and control scales on the FES. To measure conflict and individual growth pursuits, Olson and McCubbin developed their own items and did not report any psychometric data on these items. An advantage to using the FES is that it contains scales that

measure conflict and five areas of individual growth pursuits, and that these scales have been standardized on a normative population.

Extrapolating from this analysis, it was hypothesized that families which fall at the extremes of cohesion, expressiveness, organization, and control, and that exhibit greater conflict and fewer individual growth pursuits for its members would have adolescents who experienced difficulties in managing the normal adolescent tasks of separation and individuation.

The aforementioned literature review presented several research findings which support parts of this theory; however, the majority of the studies did not use a family systems approach, nor did they regard family influences as their main area of interest. Consequently, it is difficult to integrate the findings in such a way that precise relationships can be detailed and specific hypotheses formulated. At best, the extrapolations from studies and theories regarding family functioning during adolescence, and the empirical literature on adolescent drinking and driving can be combined to outline some tentative hypotheses which are more exploratory in nature than confirmatory.

Based upon the stated objectives of the proposed study and the implications from the theoretical and empirical literature presented herein, the following hypotheses were developed:

Comparison of Variations in Adolescent Driving Styles

Hypothesis #1 (family functioning):

It was hypothesized that families which fell at the extremes on the dimensions of expressiveness, cohesion, organization, and control, are high in conflict, and are low in the five

areas of individual growth would have adolescents who were riskier drivers--defined in terms of self reported (1) automobile accidents, (2) automobile near misses, and (3) seat belt disregard.

Hypothesis #2 (peer versus family influences):

It was anticipated that peer modeling of and support for reckless driving would be more highly associated with a riskier driving style (Vegega, 1984; Pelz & Schuman, 1971; Goldstein, 1972; Harrington, 1971). However, an understanding of the family climate would add significant information to the understanding of adolescent driving styles.

Hypothesis #3 (school, peer and parental correlates):

Earlier research suggests that there are a whole host of extramotivational factors that influence the driving patterns of adolescents (Pelz & Schuman, 1971). Included in this category are school, peer and family variables. Thus, it was hypothesized that adolescents who were riskier drivers would be (1) less committed to school achievement and activities, (2) more influenced by peer modeling of and support for risky driving behaviors, and (3) more likely to perceive their parents as tolerant of risky driving behaviors.

Comparison of Adolescents with Normative and Excessive Drinking Styles

Hypothesis #4 (family functioning):

It was hypothesized that families that fell at the extremes on the dimensions of expressiveness, cohesion, organization, and control, are high in conflict, and are low in the five areas of individual growth would have adolescents who

exhibited exaggerated drinking--defined in terms of self reported (1) frequency of drinking, (2) quantity of alcohol consumed per drinking occasion, (3) problems associated with drinking, and (4) frequency of drunkenness in the last year.

Hypothesis #5 (peer versus family influences):

It was anticipated that peer modeling of and support for alcohol use would be more highly associated with an exaggerated drinking style (Wodarski, 1984; Braucht, 1982; Lener & Spanier, 1980). However, an understanding of the family climate would add significant information to the understanding of adolescent drinking styles.

Hypothesis #6 (school, peer and parental correlates):

It has been suggested that a thorough model of adolescent drinking include both drinking specific and nonspecific influences in a number of domains--i.e., peer, school, and family (Zucker, 1982). Family climate can be viewed as a family of origin, nonspecific factor. In order to get a broader view of the phenomenon, several other factors were included. Specifically, it was hypothesized that adolescents who were more exaggerated drinkers would be (1) less committed to school achievement and activities, (2) more influenced by peer modeling of and support for exaggerated drinking behaviors, and (3) more likely to perceive their parents as tolerant of exaggerated drinking behaviors.

Comparison of Abstainers and Normative Drinkers

Hypotheses 7 to 9 address the family functioning correlates, peer versus family influences, and school, peer, and parental mediators

associated with normative adolescent drinking and abstinence. However, the data on this comparison group is so lacking that it is difficult to formulate specific hypotheses. Jessor and Jessor (1975) found the abstainers to be more committed to conventional behavior, more involved in traditional academic pursuits, more dependent upon their families, and less involved in antisocial activities. According to their theory, antisocial behavior increases during times of transition. It may be that this group is not yet ready to make the transitions associated with the processes of separation and individuation. They may be either slower in their development or unable to make the transition. In the former case, they may resemble the normative drinkers in the next few years. In the latter case, they may be caught up in a dysfunctional family system. The exact nature of the system is unclear.

Demone (1972) believes that abstainers are a statistically deviant group of adolescents. Whereas pathological drinkers reject most formal adolescent activities and adult-sanctioned standards of behavior, abstainers overreact in the opposite direction. They tend to adopt unquestionably adult-prescribed forms of behavior, such as academic excellence, family dependence, and religious involvement. Moreover, they rarely if ever engage in antisocial behaviors or other normative behaviors considered to be rites of passage--i.e., dating or maintaining employment during the school year.

In the area of family relationships, Demone noted that abstainers tend to come from larger, intact families, to have good communication with their parents, to participate with parents in discussions regarding values and standards of behavior--including drinking--and to feel strongly obligated to their families. Although these areas are

not systematic measures of the perceived quality of family environment, they do suggest that abstainers, as compared to pathological drinkers, may perceive their families as more cohesive, expressive, religious, intellectually-culturally oriented and less conflicted.

Combining the family data with the school and peer data, it may be that the abstainers have not begun the process of adolescent separation. Such a conclusion would be in line with Jessor and Jessor's (1975) speculations. Demone's sample of abstainers were among the youngest group of subjects--seventh and eighth graders. Thus, with time, it is likely that many of them will resemble normative drinkers; however, it is unclear what this group will be like if they remain abstainers by the latter high school years.

Based upon such information, it was hypothesized that abstainers would differ from normative drinkers in the ways in which they perceive their families, but the exact relationships would be unclear. Finally, it was hypothesized that their families would be more influential than their peers in determining drinking behaviors, and that they would be more committed to school achievement and activities.

Sex as a Moderator Variable

The existence of sex differences in the drinking and driving behaviors of adolescents has been well documented. Thus, it was hypothesized that males and females might perceive their families differently. Hypotheses #1, #4, and #7 were tested for sex differences according to the method specified by Cohen and Cohen, 1975.

METHODS

Subjects

The subjects for this study were high school junior and senior licensed drivers (N=244) who were involved in a school based driver's awareness program--Promoting Responsible Young Drivers through Education (PRYDE)--which is a project sponsored by the Department of Transportation under the direction of John Paul McKinney, Ph.D. The school was located in a rural community in a midwestern state. The entire school was tested twice a year--fall and spring--as part of an effort to develop and evaluate the PRYDE Program. The questions for this study were included in the fall, 1984 administration. Subjects were informed that their participation was strictly voluntary. See the results section for a more detailed description of subject characteristics.

Procedures

The questionnaire was administered by high school teachers during the first two hours of school. The students had 55 minutes or one class period in which to complete the questionnaire. A minimum of two project staff persons--i.e., nonschool personnel--were located in the school in order to answer questions and/or helping students discuss their reactions to the test material. The students were instructed to

complete their questionnaires independently. See Appendix A for the questionnaire.

Measures

Personal subject variables. Information on age, sex, grade, race, and parental marital status was collected. The information was used to describe characteristics of the sample.

Family climate. The instrument that was used to measure family climate is the short form of the Family Environment Scale (FES) (Moos, 1974). The FES is designed to measure and describe interpersonal relationships among family members, directions of personal growth that are emphasized in the family, and the basic organizational structures of the family. The instrument is comprised of ten independent scales. The description of each scale appears in Figure 7.

The 90-item, full scale was developed by Moos (1974) from the responses of over 1,000 individuals in 285 families. Families were representative of a variety of religious orientations, minority group membership, and psychiatric involvement. The 90 items were chosen on the basis of (1) 50-50 item split in way of responding, (2) high intrascale correlations, (3) low interscale correlations, and (4) maximal discrimination among families. The short form is a 40-item instrument--4 items per scale--which correlated .80-.96 with the long form. It allows for a more rapid assessment of family functioning and was designed partly for the purpose of group administrations.

Figure 8 displays the internal consistency coefficients obtained by Moos on a sample of 285 families. The short form has very similar values--not specifically reported in Moos (1974). Finally, the average scores for the 285 families on each of the subscales are

		Relationship Dimensions
1.	Cohesion	The extent to which family members are concerned and committed to the family and the degree to which family members are helpful and supportive of each other.
2.	Expressiveness	The extent to which family members are allowed and encouraged to act openly and to express their feelings directly.
3.	Conflict	The extent to which the open expression of anger and aggression and generally conflictual interactions are characteristic of the family.
		Personal Growth Dimensions
4.	Independence	The extent to which family members are encouraged to be assertive, self-sufficient, to make their own decisions and to think things out for themselves.
5.	Achievement Orientation	The extent to which different types of activities (i.e., school and work) are cast into an achievement oriented or competitive framework.
6.	Intellectual Cultural Orientation	The extent to which the family is concerned about political, social, intellectual cultural activities.
7.	Active Recreational Orientation	The extent to which the family participates actively in various kinds of recreational and sporting activities.
8.	Moral-Religious Emphasis	The extent to which the family actively discusses and emphasizes ethical and religious issues and values.
		System Maintenance Dimensions
9.	Organization	Measures how important order and organization is in the family in terms of structuring the family activities, financial planning, and explicitness and clarity in regard to family rules and responsibilities.
10.	Control	Assesses the extent to which the family is organized in a hierarchical manner, the rigidity of family rules and procedures and the extent to which family members order each other around.

Figure 7. Family Environment Scale Subscale Descriptions.

Subscales	Internal Consistencies (N=814)	Average Inter-scale Correlations (N=814)	Eight week Test-retest Reliability (N=47)
Cohesion	.78	.58	.86
Expressiveness	.71	.48	.73
Conflict	.75	.56	.85
Independence	.64	.45	.68
Achievement Orientation	.65	.49	.74
Intellectual-Cultural Orientation	.78	.54	.82
Active Recreational Orientation	.68	.48	.77
Moral Religious Emphasis	.79	.55	.80
Organization	.78	.52	.76
Control	.70	.51	.77

Figure 8. Internal Consistencies, Average Item-Subscale Correlations and Test-Retest Reliabilities for FES--Normative sample (Moos, 1974).

presented in Figure 9. These norms will be useful in comparing the sample in this study with the sample on which the instrument was developed.

Questions of scale validity were addressed by the authors in the following way. First, there were no consistent sex differences in perceptions of family social environments. However, there was enough variability among families to suggest that such differences may occur within specific families. Secondly, adolescents tended to see less emphasis on cohesion and expressiveness and somewhat more emphasis on conflict than did parents. Adolescents also saw less independence, intellectual-cultural orientation and moral-religious emphasis, but somewhat more achievement orientation and active recreational orientation. The above two findings are similar to the findings reported by Olson and McCubbin using a different family environment instrument. Third, cohesion and expressiveness decreased and conflict increased in larger families. Fourth, clinic families scored lower on cohesion, intellectual-cultural orientation and active-recreational orientation. They obtained higher scores on both conflict and control. The clinic families also obtained lower scores on expressiveness, and independence and higher scores on achievement orientation (Moos, 1974). The last area involved an analysis of high versus low drinking families. Although the parents not the adolescents are the drinkers, I will discuss the findings in greater detail.

Families with parents who drank alcohol more frequently reported less moral-religious emphasis. This was the only scale that differentiated high versus low drinking families. Between members, there were other differences in perception. Children in low drinking

Subscales	(N=285 families)	
	Mean	S.D.
Cohesion	2.91	0.86
Expressiveness	2.25	0.82
Conflict	2.15	1.09
Independence	2.76	0.77
Achievement-Orientation	2.26	0.93
Intellectual-Cultural Orientation	2.71	0.94
Active-Recreational Orientation	2.74	0.93
Moral-Religious Emphasis	1.94	1.30
Organization	2.37	1.02
Control	2.15	0.95

**Each subscale has 4 items

Figure 9. Means and Standard Deviations of FES Short For Subscales--Normative sample (Moos, 1974).

families perceived more emphasis on cohesion, expressiveness, achievement orientation and organization than did the children in the high drinking families. On the other hand, these latter children perceived more emphasis on intellectual-cultural orientation. The mothers in high drinking families shared their children's perceptions of their families. However, the fathers perceived fewer difficulties. The authors concluded that the results are consistent with the clinical impression that mothers and children are affected more than the father, who is usually doing the drinking.

In a second study, the authors discovered that families tended to fall into different family typologies based upon their scores on the 10 areas of social environment (Moos & Moos, 1976).

Drinking behaviors. The items in this area were adapted from the questions used by Jessor and Jessor in their triethnic study, and items suggested by Zucker and Noll (personal communications, 1984). Items included: (1) frequency of alcohol was consumption in the past 6 months, (2) frequency of drunkenness in the past year, (3) amount of alcohol consumed in a 3-hour social occasion, and (4) number of problems which have occurred as a result of drinking--trouble with teacher or principal, trouble with friends, trouble with police, trouble with parents, having driven after drinking and been criticized by a date. These measures allowed for an evaluation of frequency and intensity of drinking patterns, as well as negative consequences. Specifically, two indices of drinking were developed: (1) a quantity/frequency index (a product of the standardized responses to #1 and #3 above), and (2) a problem drinking index (a summation of the number of problem areas, including drunkenness, weighted by the

frequency of occurrences within each areas). These two indices were used to analyze the data for the adolescents in the sample who have made the transition to drinking.

A final area of interest was the understanding of perceived family environment differences between abstainers and nonproblem drinkers. The variable that measured this difference could be thought of as a transition to drinking index. In the following section a criteria for classifying subjects into one of three drinking categories--abstainers, normative, and excessive drinkers--is outlined. Those subjects who fell into the abstainer category were coded 0 and those subjects who fell into the normative drinker category were coded 1. This simple dichotomous variable was preferable to the quantity/frequency and problem indices for these comparisons since any variation of the latter two variables would be due to the drinkers--abstainers always receive a score of 0 on these variables because they do not drink. Thus, by creating a dichotomous variable, the differences that emerged were due to between-group rather than within-group variation.

Driving behaviors. Based upon the traffic safety research reviewed herein, the following items were chosen to measure driving: (1) number of accidents as a driver, (2) number of accidents as a motorcyclist, (3) number of near misses as a driver, and (4) seat belt disregard. Responses on each of the four items were standardized and summed to form one "risky driving" index.

School, peer, and parental correlates. In order to get a more complete picture of adolescent drinking and risky driving, three sets of variables were included in the study: school, peer, and parental mediators. The specific items included: (1) grade point average, (2)

academic expectations, (3) school truancy, (4) peer support of adolescent drinking, (5) peer support for risky driving, (6) peer modeling of drinking, (7) peer involvement in automobile accidents, (8) peer involvement in moving violations, (9) perceived parental support of adolescent drinking, and (10) perceived parental support of adolescent risky driving.

Classification of Subjects

Drinking categories. The adolescent drinking literature suggests that abstainers and problem or excessive drinkers may be qualitatively different from normative drinkers. Thus, this study compared abstainers to normative drinkers and excessive/problem drinkers to normative drinkers. In order to accomplish this task, definitions of normative and problem/excessive drinking were developed.

Cahalan, Cisin and Crossley (1969) argued for the need to use several definitions of "problem drinking" when conducting alcohol related research. Jessor and Jessor (1975) defined drinking in terms of drunkenness in the past year, plus problems associated with drinking. Specifically, they classified individuals as problem drinkers if they reported either (1) drunkenness at least 6 times in the past year, or (2) negative consequences two or more times in the past year in at least three out of five areas. Using this definition, 29.3% of 7481 moderate drinkers were classified as "problem drinkers." The authors noted the arbitrary nature of this, or any, definition. Consequently, they developed two other definitions based on (1) frequency of drunkenness, or (2) problems associated with drinking. The second definition of problem drinking was drunkenness twice a month or more in the past year. Definition III was based on the negative

consequences of drinking: having experienced, over the past year, drinking-related negative consequences at lease twice in any single area, with at least one experience in an additional area.

Examining personality, perceived social environment, and behavioral variables, they found that with all three definitions, problem drinkers could be distinguished from nonproblem drinkers. Moreover, the pattern of findings remained essentially invariant over the three different definitions. The findings demonstrate the utility of considering both frequency and problem indices of drinking in a definition.

Zucker (1980) defined a continuum of drinking groups from abstainers to heavy drinkers (see Figure 5). In his work, he combined this criteria with an alcohol-related problem index in order to identify problem drinkers.

Based on the above literature, three levels of drinking were differentiated in the present study:

(1) **Abstainers**--nondrinkers

(2) **Normative Drinkers**--(1) infrequent, light, and moderate drinkers (Zucker, 1980) with no more than four occurances of one or more alcohol related problems, and no more than ten occurrences of drunkenness in the past year (Jessor & Jessor, 1972)

(3) **Excessive Drinkers**--(1) moderate heavy or heavy drinkers (Zucker, 1973; 1975), or (2) one or more occurances of alcohol-related problems in each of the six areas, or two or more problems in at least three out of the six areas, or 10

or more problems in a single area combined with at least one problem in a second area.

Because the focus of the study is on the entire spectrum of drinking, and not on identifying the extreme group, the definition is somewhat less restrictive than either the Jessor et al. or Zucker definitions.

RESULTS

Personal Subject Characteristics of the Sample

Descriptive statistics were obtained for all of the subjects on the following variables: age, grade, sex, race, and parental marital status. The results appear in Table 1a. The majority of subjects are 16 (38%) and 17 (55%) years of age and are enrolled in their junior and senior years of high school. The sample contains slightly more males (10%) than females, with 97% of the subjects being Caucasian. Finally, approximately 25% of the adolescents come from families in which the parents are currently divorced.

In order to get an estimate of what percentage of the sample could be considered "at risk," a classification scheme was developed. A categorical variable, driver status, was developed from a combination of the number of accidents and the number of close call. At-risk drivers included those subjects who were involved in at least one driving accident and/or who reported a near miss at least once per month. Table 1b presents the results of a chi-square analysis of the difference between male and female subjects within each driving classification, controlling for age. No significant differences were found ($p>.05$). An average of 35% of the subjects fell within the risky driving category.

Table 1a

Descriptive Information on Sample Characteristics

Characteristic	Mean	Mode	Group Percentages	(%)
Age	16.70	17.00	16 yrs.	(38)
			17 yrs.	(55)
			18 yrs.	(07)
			20 yrs.	(00)
Grade	-----	12.00	11th	(44)
			12th	(56)
Sex	-----	Males	Males	(55)
			Females	(45)
Race	-----	Caucasian	Caucasian	(97)
			Hispanic	(01)
			Black	(00)
			Native American	(02)
			Asian	(00)
Parents Marital Status	-----	Married	Married	(76)
			Divorced	(24)

Table 1b

Chi Square Analyses of the Driving Groups by Sex, Controlled for Age

	Controlling for for age = 16		Controlling for for age = 17		Controlling for for age = 18	
	Males	Females	Males	Females	Males	Females
Safe drivers	30 65.2%	39 83.0%	46 62.2%	36 60.0%	5 38.5%	2 66.2%
Risky drivers	16 34.8%	8 17.0%	28 27.8%	24 40.0%	8 61.5%	1 33.3%
	Chi square = 3.83, with 1 DF, $p > .05$		Chi square = .07, with 1 DF, $p > .05$		Fisher's exact test = .400, p . .05	

Drinking status was determined by theoretical classification schemes suggested by Zucker (1980) and Jessor et al. (1974). Definitions of four categories of drinkers--i.e., abstainers, normative-light, normative-moderate, and exaggerated--were based upon two criteria--quantity/frequency of drinking and problems associated with drinking. Table 1c presents the results of a chi square analysis of the drinking groups by sex and age. Controlling for age, the percentage of males and females in each drinking category did not significantly differ ($p > .05$). Table 1d demonstrates that the percentage of drinkers within each category (collapsed over age and sex) is not significantly different from the percentages found by Zucker and Hartford (1983) for 16- to 18-year-olds, with the exception that the females in this sample tend to be heavier drinkers than the females in the Zucker and Hartford sample. In all subsequent analyses, the light-normative and moderate-normative categories will be combined into one normative drinking category.

Family Environment, Drinking, and Driving Scale Reliabilities

Because the relationship scales are composite scores--e.g., the sum of four items per scale--the internal consistency values for each scale were computed. The results of this analysis are presented in Table 2, and indicate that cohesion, conflict, culture, religion, organization, and control are measured with adequate reliability; however, the internal consistency values for expressiveness, individuation, achievement orientation and recreation reflect low reliabilities. Thus, the ability of these latter scales to account for a significant amount of the variance among adolescents on the drinking

Table 1c

Chi Square Analyses of the Drinking Groups by Sex, Controlled for Age

	Males	Females	Males	Females	Controlling for age = 18 Males	Controlling for age = 18 Females
Abstainer	10 21.7%	11 23.4%	28 27.8%	13 21.7%	6 46.2%	0 0%
Light	17 37.0%	20 42.6%	13 17.6%	18 30.0%	1 7.7%	0 0%
Moderate	7 15.2%	2 4.3%	10 13.5%	6 13.0%	1 7.7%	0 0%
Exaggerated	12 26.1%	14 29.8%	23 31.1%	23 38.3%	5 38.5%	3 100%
	Chi square = 3.212, with 3 DF, $p > .05$		Chi square = 5.896, with 3 DF, $p > .05$		Chi square = 3.691, with 3 DF, $p > .05$	

Table 1d

Percentages of Subjects within Each Drinking Category--A Comparison to the Zucker and Hartford (1984) Findings

Study	Abstainers	Normative-light	Normative-moderate	Exaggerated
I. Males (16-18 year olds):				
A. Zucker	34.4-38.0%	25-0-33.4%	10.8-14.8%	21.6-52.3%
B. Smith-Winberry	33.08%	23.21%	13.53%	30.08%
II. Females (16-18 year olds):				
A. Zucker	27.4-33.3%	34.5-39.5%	9.0-15.5%	17.3-22.7%
B. Smith-Winberry	21.82%	34.55%	7.27%	36.66%
III. All subjects (16-18 year olds):				
A. Zucker	30.9-35.7%	30.3-36.5%	9.9-15.2%	19.0-37.5%
B. Smith-Winberry	27.9%	28.3%	10.7%	33.2%

Table 2

Internal Consistency Scores for Scaled Variables on Measures of Family Environment, Driving, Drinking and Peer Support

Scale	Alpha
Family Environment:	
Cohesion	.64
Expressiveness	.38
Conflict	.70
Individuation	.14
Achievement orientation	.18
Culture	.41
Recreation	.27
Religion	.60
Organization	.52
Control	.41
Driving:	
Risky Driving Index	.38
Drinking:	
Problem Drinking Index	.69
Quantity/Frequency Index	.72
Peer support for:	
Drinking	.30
Driving	.40

and driving measures is attenuated. Any relationships that emerge on these scales are likely to be very robust.

Among the drinking and driving dependent measures, the problem drinking index and the quantity/frequency index were measured with considerable accuracy, while the peer support scales and the risky driving index were measured with moderate reliability.

Testing the Hypothesized Curvilinear Relationships

Hypotheses #1, #4, and #7 specify that families which function on the extremes of cohesion, expressiveness, control, and organization will have adolescent members who are more likely to act out in the areas of drinking and driving. Such a relationship is nonlinear and hence inappropriate for linear regression analysis. However, Cohen (1978) provides a cogent argument for the ability of linear regression analysis to determine if nonlinear relationships exist. By stepping the linear and curvilinear forms of a variable, in that order, into a hierarchical analysis, one can determine if there is a significant curvilinear relationship after the linear relationship has been accounted for.

In the present study, two relationship scales--cohesion and expressiveness--and two maintenance scales--organization and control--are posited to relate in a curvilinear fashion to adolescent drinking and risky driving. In order to test these hypotheses, four hierarchical analyses were conducted for each dependent variable, stepping in the linear form of the family environment variables first ($Y=bX1 + a$) and then the curvilinear form ($Y=bX1 + bX1*X1 + a$). The null hypotheses for the partial, semipartial, beta and B weights all test whether there is a unique, significant curvilinear relationship.

Table 3 presents the significance tests for the partial correlations of the curvilinear forms of the relationship and the maintenance scales with the drinking and driving measures. Alpha has been set at .1 so that curvilinear relationships are more readily identified.

The results of this analysis indicate that significant curvilinear relationships exist for cohesion with three of the dependent measures--quantity/frequency index ($p < .05$), transition to drinking index ($p < .10$), and risky driving index ($p < .01$), as well as a significant linear relationship with the risky driving index ($p < .001$). Similarly, organization has a significant curvilinear relationship with two of the drinking measures--quantity/frequency index ($p < .05$) and transition to drinking index ($p < .10$)--and expressiveness has a significant curvilinear relationship with one of the measures--quantity/frequency index ($p < .01$). Finally, control is not significantly related to drinking or driving in its curvilinear form ($p > .05$).

Figure 10 further illustrates the curvilinear phenomenon. Although the relationship between cohesion and the risky driving index is presented, the schematic representation of the curvilinear relationship between any of the other family environment variables and the dependent measures would be similar. A significant curvilinear relationship suggests that at both low and high values of variable A, in this case cohesion, the values of variable B--risky driving--remain relatively constant at either a high or a low level. At moderate values of variable A, the value of variable B is in the reverse direction of its value at the extremes of A. Further analyses would be needed to determine whether the actual function is a ∪ or a ∩

Table 3

Correlations of the Curvilinear Association between Cohesion, Expressiveness, Control & Organization and Drinking and Driving After Partialling Out the Linear Associations

Variables	Partial Correlations	F	Sig.	Prob. of linear R
I. Licensed drivers:				
A. Risky driving index				
Cohesion	-.16	6.07	.01	.01
Expressiveness	-.03	.26	---	.05
Control	.08	1.39	---	---
Organization	-.04	.46	---	.01
II. Normative and problem drinkers:				
A. Quantity/frequency index				
Cohesion	-.17	5.13	.05	---
Expressiveness	-.19	6.39	.01	---
Control	.01	.33	---	---
Organization	-.15	3.93	.05	---
B. Problem drinking index				
Cohesion	-.06	.73	---	---
Expressiveness	-.08	1.01	---	---
Control	.07	.74	---	---
Organization	-.03	.16	---	---
III. Abstainers and non-problem drinkers:				
A. Transition to drinking index				
Cohesion	-.13	2.91	.09	---
Expressiveness	.02	.75	---	---
Control	-.00	.75	---	.05
Organization	-.13	2.87	.09	---

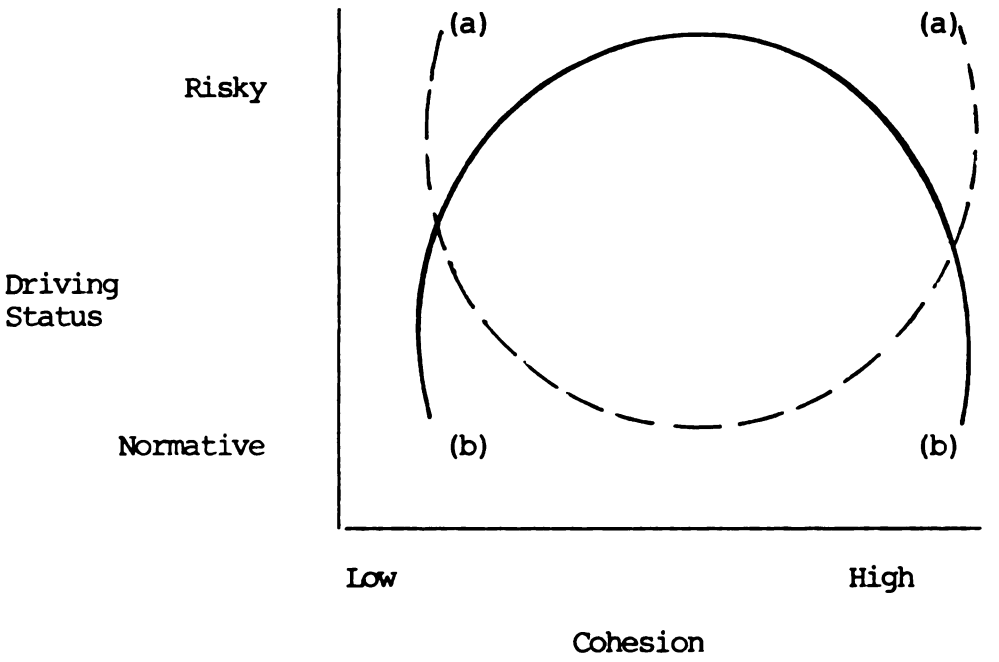

Figure 10. Illustration of a significant curvilinear relationship between cohesion and risky driving.

shape. Thus, as illustrated in Figure 10, a significant curvilinear relationship between cohesion and risky driving indicates that the precise relationship will be either a ⌣ (a) or an inverted ⌢ (b) function.

In the following analyses, the appropriate form of the family environment variables will be selected for each dependent variable. The specified curvilinear form of the significant family environment scales is a U-shaped function. Thus, subjects scoring on the extremes--i.e., scale values of 0 and 4--will be put into one group (coded as 1) and subjects scoring in the middle range--i.e., scale values of 1 to 3--will be put into a second group (coded as 0).

Overall Relationship Between Family Environment and Adolescent Drinking and Risky Driving

Hypotheses #1, #4, and #7 require ten separate regression equations for each dependent variable--three drinking variables and one driving variable. The resultant number of regression equations would equal 40. With alpha set at .05, it would be expected that two of these equations would yield a significant outcome strictly by chance. In order to reduce the probability of type I error, it has been suggested that when the independent and dependent variables are multiple measures of the same or similar constructs--i.e., are significantly intercorrelated--a conservative first step would be a multiple regression analysis, or a canonical analysis, depending on the number of dependent variables. With such an analysis, one would determine whether any relationship exists between the two sets of variables. If a relationship does exist, the exact nature of the

relationship can then be teased out by conducting further analyses on each dependent variable individually (Cohen & Cohen, 1975).

Table 4 presents the intercorrelations for the ten areas of family functioning. Table 5 presents the intercorrelations of the three measures of drinking and the one measure of risky driving. It should be noted that the drinking measures are based upon different samples. The quantity/frequency and problem drinking indices are based on data from subjects who have made the transition to drinking, while the transition to drinking index is based upon data from abstainers and normative drinkers. Finally, the risky driving index is based upon data from all subjects--licensed drivers.

It is evident that the family environment dimensions--relationships: cohesion, expressiveness, and conflict; growth: achievement-orientation, individuation, intellectual-cultural orientation, recreation, and religion; maintenance: organization and control--are significantly intercorrelated ($p < .05$-$.001$). Similarly, the two drinking measures--quantity/frequency and problem drinking indices--the one transition to drinking measure, and the one risky driving measure are significantly intercorrelated ($p < .05$). Thus, the first step in analyzing the relationships between family environment and adolescent drinking and risky driving--hypotheses #1, #4, and #7--will be a multiple regression. Since this is the first step in an exploratory analysis, alpha will be set at .1 so that overall relationships are more readily identified.

The multiple regression equations for the family environment scales and the four dependent variables are presented in Tables 6-8.

Table 4

Intercorrelations of Family Environment Scales

	F1	F2	F3	F4	F5	F6	F7	F8	F9	F10	F11	F12
Cohesion (1)												
Cohsq (2)	-.09											

Express (3)	.59	-.15										
	***	**										
Expsq (4)	-.49	.30	-.46									
	***	***	***									
Conflict (5)	.12	-.34	.12	-.19								
	*	***	*	***								
Achieve (6)	.52	-.35	.36	-.45	.33							
	***	***	***	***	***							
Individ (7)	.47	-.30	.41	-.38	.43	.51						
	***	***	***	***	***	***						
Recreat (8)	.67	-.20	.56	-.45	.28	.54	.52					
	***	***	***	***	***	***	***					
Religion (9)	.53	-.15	.35	-.33	.25	.47	.38	.54				
	***	**	***	***	***	***	***	***				
Culture (10)	.62	-.19	.52	-.39	.20	.49	.45	.64	.51			
	***	**	***	***	***	***	***	***	***			
Organiz (11)	.74	-.21	.50	-.50	.13	.60	.46	.64	.56	.59		
	***	***	***	***	*	***	***	***	***	***		
Orgsq (12)	-.28	.38	-.29	.27	-.28	-.35	-.47	-.33	-.18	-.31	-.20	
	***	***	***	***	***	***	***	***	**	***	**	
Control (13)	.37	-.26	.19	-.31	.52	.43	.40	.39	.38	.28	.40	-.25
	***	***	***	***	***	***	***	***	***	***	**	***

*** ($p < .001$).
** ($p < .01$).
* ($p < .05$)

Table 5

Intercorrelations of the Drinking and Driving Measures

		D1	D2	D3	D4
Risky driving	(D1)				
Quantity/ frequency	(D2)	.57 ***			
Problem drinking	(D3)	.78 ***	.41 ***		
Transition to drinking	(D4)	.08 ---	.40 ***	.38 ***	

*** ($p < .001$).
** ($p < .01$).
* ($p < .05$).

Table 6

Multiple Regression Analysis of the Family Environment Scales and Risky Driving

Variables	Multiple R	R Square	Adjusted R^2	DF	Overall F	Significance
Risky driving:						
Cohesion Cohsq Expressiveness Achievement Individuation Recreation Religion Culture Organization Control Conflict	.357	.128	.090	11/232	3.41	.000

Table 7

Canonical Analysis for the Family Environment Scales and the Drinking Measures

Number	Eigenvalue	Canonical Correlation	Wilk S Lambda	Chi-square	DF	Significance
1	.13	.36	.83	32.39	18	.020
2	.05	.22	.95	8.59	8	.378

	Canonical Variable 1
Control	.009
Organize	.145
Orgsq	-.414
Achieve	.247
Individ	.406
Recreate	.860
Religion	-.639
Cohsq	-.295
Expsq	-.297
	Canonical Variable 2
Quan/Freq	.952
Problems	.107

Table 8

Multiple Regression Analysis of Family Environment and the Transition to Drinking Index

Variables	Multiple R	R Square	Adjusted R^2	DF	Overall F	Significance
Transition to drinking:						
Cohsq Expressiveness Conflict Achievement Individuation Recreation Religion Culture Orgsq Control	.304	.092	.035	10/160	1.62	.104

The results of the analysis for the risky driving index demonstrate an overall relationship between these two sets of variables (R=.36, $p < .01$). Similarly, the transition to drinking index is also significantly related to the set of ten family environment dimensions, although the overall relationship is not as strong (R=.30, $p < .1$).

Table 7 presents the canonical equation for the ten relationship scales and the two measures of adolescent drinking. The results indicate that a significant first order association exists ($p < .05$). After the first order relationship is accounted for, there is no significant linear relationship between the two sets of variables (Wilks Lambda, $p > .05$). Thus, hypotheses will be analyzed individually for each of the ten family environment areas.

After determining scale reliabilities, appropriate scale measurements--i.e., linear versus curvilinear--and the overall relationship between the independent and dependent sets of variables, we can turn our attention to the examination of the specific hypotheses.

Hypothesis #1 (Family Environment and Risky Driving)

Regression analyses were used to test the hypothesis that family environment is related to adolescent risky driving behaviors. The previous analysis found that the prediction of curvilinearity emerged for cohesion, but not for expressiveness, organization, or control. Thus, in this set of regression analyses, the linear forms of all ten FES scales will be utilized, as well as the curvilinear form of cohesion.

The Pearson product moment correlations in Table 9 indicate that compared to safe drivers, risky drivers perceive their families as

Table 9

Correlations between the Family Environment Scales and Risky Driving

Cohesion	-.26 ***
Cohsq	-.14 **
Expressiveness	-.15 **
Conflict	-.02 ---
Achievement Orientation	-.10 ---
Individuation	-.13 *
Recreational Orientation	-.21 ***
Religion	-.21 ***
Intellectual-Cultural	-.26 ***
Organization	-.23 ***
Control	-.12 *

*** ($p < .001$).
** ($p < .01$).
* ($p < .05$).

moderately cohesive ($p < .01$); however, there is also a significant linear trend ($p < .01$) such that within the moderate range, the riskier drivers perceive their families as less cohesive. Moreover, the risky drivers perceive their families as less involved in four areas of individual growth--religion ($p < .001$), individuation ($p < .05$), recreation ($p < .001$), and intellectual-cultural involvement ($p < .001$)--less organized ($p < .001$), less controlling ($p < .05$) and less expressive ($p < .01$).

Table 10 presents the findings from the analysis of sex as a moderator variable. The literature suggests that the driving profile of males differs from the driving profile of females. If this pattern is true, then the interaction of sex and the family environment scales should account for significant variance above and beyond the main effects of sex and family relationships. However, the hierarchical regression analysis does not support the hypothesis that sex is a moderator variable. The partial correlations of the interaction variables were not significant at the .05 level. Thus, sex will not be utilized in understanding the association between family environment and adolescent driving in any further analyses.

Hypothesis #4 (Family Environment and Drinking)

It was hypothesized that families at the extremes of cohesion, expressiveness, organization and control, high in conflict, and low in the five areas of individual growth would have adolescent members who consume more alcohol and who have more problems associated with their drinking. Among the drinkers, it was found that the predictions of curvilinearity were substantiated for cohesion, expressiveness, and organization on the quantity/frequency index; however, none of the

Table 10

Correlations of the Sex x Family Environment Interactions With Driving After the Main Effects Have Been Partialled Out

Partial Variables	Partial Correlations	F	Sig.
I. Licensed Drivers:			
A. Risky Driving Index			
Sex * Cohesion	.00	.22	----
Sex * Cohsq	-.01	.30	----
Sex * Express	-.01	.26	----
Sex * Conflict	-.01	.46	----
Sex * Achieve	-.06	.88	----
Sex * Individ	.00	.28	----
Sex * Recreate	.02	.14	----
Sex * Religion	.04	.42	----
Sex * Culture	-.01	.20	----
Sex * Organize	-.05	.63	----
Sex * Control	.02	.10	----

curvilinear relationships emerged on the problem drinking index. Table 11 presents the matrix of the correlations between the ten family environment scales and the two measures of drinking. The results indicate that adolescents who consume more alcohol on a frequent basis perceive their families as moderately cohesive ($p < .01$), moderately expressive ($p < .01$), more conflicted ($p < .05$), more individuated ($p < .01$), and more recreationally oriented ($p < .01$). Further, adolescents who report having more problems with their drinking habits perceive their families as less involved in intellectual-cultural activities ($p < .05$) and less organized ($p < .05$).

The analyses of sex as a moderator variable are presented in Table 12. The interaction of sex and the relationship scales of conflict and control are significant for the problem drinking index ($p < .05$). Specifically, perceived control and conflict are unrelated to drinking problems among males, and positively related to drinking problems among females.

Hypothesis #7 (Family Environment and the Transition to Drinking)

Of the four hypothesized curvilinear relationships between family environment and drinking status, only cohesion and organization proved to be significant. Thus, in the following regression equations, the curvilinear forms of these two scales and the linear forms of the other eight scales will be utilized. The product moment regression correlations between family environment and the transition to drinking index are presented in Table 13.

Compared to adolescents who have made the transition to drinking, abstainers perceive their families as lying on the extremes of cohesion ($p < .01$) and organization ($p < .05$), less conflicted ($p < .001$), less

Table 11

Correlations Between the Family Environment Scales and the Drinking Measures

	Quantity/ Frequency Index	Problem Drinking Index
Cohesion	---	-.08
	---	---
Cohsq	-.20	---
	**	---
Expressiveness	---	-.03
	---	---
Expsq	-.20	---
	**	---
Conflict	.13	-.01
	*	---
Achievement Orientation	.09	.07
	---	---
Individuation	.19	-.02
	**	---
Recreational Orientation	.17	.04
	**	---
Religion	-.11	-.09
	---	---
Intellectual-Cultural	-.01	-.13
	---	*
Organization	---	-.12
	---	*
Organizesq	-.11	---
	---	---
Control	.05	-.02
	---	---

*** ($p < .001$). ** ($p < .01$). * ($p < .05$).

Table 12

Correlations of the Sex x Family Environment Interactions With Drinking After the Main Effects Have Been Partialled Out

Variables	Partial Correlations	F	Sig.
I. Normative and problem drinkers			
A. Quantity/Frequency Index			
Sex * Cohsq	-.08	1.00	----
Sex * Expsq	.08	1.11	----
Sex * Conflict	.07	.79	----
Sex * Achieve	-.07	.79	----
Sex * Individ	-.06	.53	----
Sex * Recreate	-.05	.42	----
Sex * Religion	-.02	.65	----
Sex * Culture	-.05	.39	----
Sex * Orgsq	-.03	.16	----
Sex * Control	.02	.51	----
B. Problem Drinking Index			
Sex * Cohesion	.09	1.35	----
Sex * Express	.01	.34	----
Sex * Conflict	.16	4.58	.034
Sex * Achieve	.11	2.06	----
Sex * Individ	.14	3.41	----
Sex * Recreate	.05	.40	----
Sex * Religion	.04	.25	----
Sex * Culture	.05	.46	----
Sex * Organize	.01	.48	----
Sex * Control	.17	5.10	.025

Table 13

Correlations Between the Family Environment Scales and the Transition to Drinking

	Transition to Drinking Index
Cohsq	.13 *
Expressiveness	.07 ---
Conflict	.23 ***
Achievement Orientation	.16 *
Individuation	.11 *
Recreational Orientation	.08 ---
Religion	.01 ---
Intellectual-Cultural	.07 ---
Organizesq	-.12 ---
Control	.16 *

*** ($p < .001$).
** ($p < .01$).
* ($p < .05$).

achievement oriented ($p < .001$), less individuated ($p < .05$), and less controlling ($p < .01$).

Table 14 presents the results of the analyses of the family environment by sex interactions. Only one scale emerged as significant ($p < .05$). Specifically, achievement orientation was unrelated to the drinking status of females ($p > .05$) while it was positively associated with the drinking status of males ($p < .05$). Males who have made the transition to normative drinking perceive their families as more achievement oriented.

Relative Relationship of Peer and Family Environment Influences

Hypothesis #2 (Peer Versus Family Environment--Driving)

It was predicted that peer variables would be significantly related to the driving measure, but that an understanding of family environment would account for a significant percent of variance after peer variables had been accounted for. Three items were chosen to measure peer influences: (1) the amount of perceived support adolescents receive from their peers for risk taking while driving, (2) the number of peers who have been involved in traffic accidents, and (3) the number of peers who have received a moving violation.

In order to test this hypothesis a mixed hierarchical-stepwise regression equation was computed. The first three peer variables were entered as a set. As predicted, they accounted for a significant amount of variance for the risky driving measure ($R=.31$, $p < .001$). The second step of the analysis was to add the remaining ten family environment scales into the equation. Since there were no prior hypotheses regarding the ordering of the scales, they were entered in a stepwise fashion. If a family environment variable accounted for at

Table 14

Correlations of the Sex x Family Environment Interactions With Transition to Drinking After the Main Effects Have Been Partialled Out

Variables	Partial Correlations	F	Sig.
I. Abstainers and non-problem drinkers			
A. Transition to Drinking Index			
Sex * Cohsq	.13	2.74	----
Sex * Express	-.00	.32	----
Sex * Conflict	-.04	.21	----
Sex * Achieve	-.15	3.95	.048
Sex * Individ	-.03	.15	----
Sex * Recreate	-.08	1.03	----
Sex * Religion	-.09	1.52	----
Sex * Culture	-.07	.74	----
Sex * Orgsq	.11	2.10	----
Sex * Control	-.09	1.15	----

least .01% of the variance and the total regression equation remained significant, the scale was retained in the equation. The results of this analysis are presented in Table 15.

The findings support the general hypothesis that family environment contributes significant understanding to the phenomenon of adolescent risky driving. With the entire sample, three out of the ten scales were significantly related to risky driving. Specifically, risky driving was associated with less cohesiveness within the moderate range and less intellectual-cultural involvement (R increased from .31 to .44, $p < .001$).

During the stepwise regression part of the analysis, the ten family environment scales were ordered in a way which was determined strictly by mathematical computations. Such a procedure was appropriate given that there were no hypotheses regarding a theoretical ordering; however,chance factors were much more influential in determining the final rank order. Thus, it was decided to conduct a cross validation analysis in order to determine to what degree the ordering is due to chance variations. After the mixed hierarchical-stepwise analysis was performed on all the subjects' data, the sample was randomly divided into two groups and the regression equations were repeated on each group. The results of these analyses appear in the middle and lower portions of Table 15.

The regression equations for the two cross validation samples support the conclusion that family environment is significantly related to risky driving, even after peer influences have been accounted for. In both samples, at least five FES scales were significantly related to risky driving. The results from the cross validation analysis also

Table 15

A Mixed Hierarchical-Stepwise Regression Analysis, Examining the Correlations of Family Environment and Driving After Peer Support and Modeling Have Been Accounted For

Step	Variable	Multiple R	R Square	Adjusted R^2	R^2 Change	Simple R	DF	Overall F	Sig.
I.	Entire Sample:								
1	Peer support	.086	.007		.007	.086			
	Model accident	.255	.065		.057	.245			
	Model ticket	.314	.099	.087	.134	.297	3/239	8.72	.000
2	Cohesion	.404	.163	.149	.065	-.261	4/238	11.63	.000
3	Culture	.423	.179	.161	.015	-.267	5/237	10.30	.000
4	Cohsq	.443	.197	.176	.018	-.141	6/236	9.62	.000
II.	Cross Vaslidation #1:								
1	Peer support	.085	.007		.007	.085			
	Model support	.291	.085		.078	.287			
	Model ticket	.333	.111	.089	.027	.316	3/116	4.85	.000
2	Cohesion	.447	.200	.172	.088	-.297	4/115	7.18	.000
3	Culture	.464	.215	.181	.016	-.298	5/114	6.25	.000
4	Achieve	.475	.225	.184	.010	-.039	6/113	5.48	.000
5	Individ	.496	.246	.199	.020	-.214	7/112	5.21	.000
6	Recreate	.508	.258	.205	.013	-.206	8/111	4.84	.000
7	Conflict	.516	.266	.266	.008	-.121	9/110	4.43	.000

(table continues)

Step	Variable	Multiple R	R Square	Adjusted R^2	R^2 Change	Simple R	DF	Overall F	Sig.
III. Cross Validation #2:									
1	Peer support	.094	.009		.009	.094			
	Model accident	.210	.044		.035	.189			
	Model ticket	.291	.085	.062	.041	.278	3/119	3.68	.000
2	Cohsq	.377	.142	.113	.057	-.274	4/118	4.88	.000
3	Achieve	.445	.198	.164	.056	-.170	5/117	5.78	.000
4	Culture	.465	.216	.175	.018	-.227	6/116	5.32	.000
5	Control	.477	.228	.181	.012	-.112	7/115	4.85	.000
6	Individ	.488	.238	.184	.010	-.007	8/114	4.45	.000

demonstrate the operation of chance factors in determining which scales appear in the equation, and in what order they appear. Thus, one must be cautious in over-interpreting these results. The only scale which appeared in all three equations was intellectual-cultural involvement. One or both forms of cohesion also emerged. Thus, it is likely that these two family dimensions have the strongest association with adolescent driving with this sample of adolescents. Beyond this statement, all that can be said with any degree of confidence is that family environment adds significant information to the understanding of adolescent risky driving after peer influences have been accounted for.

Hypothesis #5 (Peer Versus Family Environment--Drinking)

Similar to hypothesis #2, it was anticipated that (1) peer support for adolescent drinking, and (2) modeling of drinking behaviors would account for a significant amount of the variance associated with adolescent drinking. No precise ordering of the family environment scales was predicted. Thus, the same mixed hierarchical-stepwise equation was employed, and the same criterion for retaining a scale was used. Cross validation analyses were again conducted.

Tables 16 to 18 present the analyses for the two drinking variables: (1) quantity/frequency index, and (2) problem drinking index. The hypothesis that peer influences would be significantly related to adolescent problem drinking, with family environment variables contributing additional meaningful information was confirmed (R increased from .24 to .39, $p < .01$). Three family environment scales were related to problem drinking with the full sample and the two cross validation samples. Specifically, greater problems associated with drinking were correlated with higher achievement

Table 16

A Mixed Hierarchical-Stepwise Regression Analysis, Examining the Correlations of Family Environment and Drinking After Peer Support and Modeling Have Been Accounted For

Step	Variable	Multiple R	R Square	Adjusted R^2	R^2 Change	Simple R	DF	Overall F	Sig.
I.	Entire Sample: (Quantity/frequency index)								
1	Peer support	.131	.017		.017	.131			
	Peer modeling	.173	.030	.019	.013	.120	2/173	2.68	.072
2	Cohsq	.299	.067	.051	.037	-.199	3/172	4.13	.007
3	Expsq	.291	.085	.063	.018	-.202	4/171	3.96	.004
4	Religion	.335	.112	.086	.028	-.106	5/170	4.31	.001
5	Recreate	.372	.138	.108	.026	.170	6/169	4.52	.000
6	Culture	.388	.150	.115	.012	-.012	7/168	4.25	.000
7	Individ	.400	.160	.120	.010	.191	8/167	3.98	.000
II.	Entire Sample: (Problem drinking index)								
1	Peer support	.221	.049		.049	.221			
	Peer modeling	.238	.057	.046	.008	.100	2/173		.000
2	Culture	.286	.082	.066	.025	-.128	3/172		.002
3	Achieve	.311	.096	.075	.015	.067	4/171		.002
4	Organize	.343	.118	.092	.021	-.122	5/170		.001
5	Recreate	.375	.140	.110	.023	.043	6/169		.000
6	Individ	.388	.151	.115	.010	-.022	7/168		.000

Table 17

A Mixed Hierarchical-Stepwise Regression Analysis, Examining the Correlations of Family Environment and Drinking After Peer Support and Modeling Have Been Accounted For

Step	Variable	Multiple R	R Square	Adjusted R^2	R^2 Change	Simple R	DF	Overall F	Sig.
I.	Cross Validation #1: (Quantity/frequency index)								
1	Peer support	.101	.010		.010	.101			
	Peer modeling	.165	.027	.004	.017	.140	2/84	1.17	.314
2	Recreate	.325	.106	.073	.078	.271	3/83	3.27	.025
3	Religion	.388	.151	.109	.045	-.077	4/82	3.64	.009
4	Expsq	.425	.181	.130	.030	-.279	5/81	3.57	.006
5	Control	.445	.198	.138	.018	.232	6/80	3.30	.006
6	Culture	.455	.207	.137	.009	.068	7/79	2.95	.009
7	Achieve	.465	.217	.137	.010	.196	8/78	2.70	.011
8	Cohsq	.475	.226	.135	.009	-.170	9/77	2.49	.015
II.	Cross Validation #1: (Problem drinking index)								
1	Peer support	.309	.095		.095	.309			
	Peer modeling	.310	.096	.074	.001	.004	2/84	4.46	.014
2	Cohesion	.345	.119	.087	.023	-.087	3/83	3.75	.014
3	Achieve	.378	.143	.101	.023	.098	4/82	3.41	.012
4	Individ	.420	.176	.126	.034	-.052	5/81	3.47	.007
5	Recreate	.444	.197	.137	.021	.062	6/80	3.28	.006
6	Express	.456	.208	.138	.011	.021	7/79	2.97	.008
7	Organize	.487	.218	.138	.010	-.062	8/78	2.72	.011

Table 18

A Mixed Hierarchical-Stepwise Regression Analysis, Examining the Correlations of Family Environment and Drinking After Peer Support and Modeling Have Been Accounted For

Step	Variable	Multiple R	R Square	Adjusted R^2	R^2 Change	Simple R	DF	Overall F	Sig.
I.	Cross Validation #2: (Quantity/frequency index)								
1	Peer support	.150	.022		.022	.150			
	Peer modeling	.171	.029	.007	.007	.080	2/86	1.30	.279
2	Cohsq	.284	.081	.048	.051	-.236	3/85	2.48	.066
3	Religion	.333	.111	.069	.030	-.148	4/84	2.82	.040
4	Individ	.366	.134	.082	.023	.188	5/83	2.57	.033
5	Control	.391	.153	.091	.019	-.115	6/82	2.47	.030
6	Culture	.407	.166	.093	.013	-.093	7/81	2.30	.035
7	Recreate	.425	.181	.099	.015	.058	8/80	2.21	.035
8	Orgsq	.438	.192	.100	.011	-.072	9/79	2.09	.040
9	Expsq	.447	.200	.097	.008	-.109	10/78	1.95	.051
II.	Cross Validation #2: (Problem drinking index)								
1	Peer support	.113	.013		.012	.113			
	Peer modeling	.245	.060	.038	.047	.215	2/85	2.75	.070
2	Organize	.347	.120	.089	.060	-.199	3/85	3.88	.012
3	Recreate	.376	.141	.101	.021	.010	4/84	3.48	.011
4	Culture	.410	.168	.118	.027	-.205	5/83	3.35	.008
5	Conflict	.421	.177	.117	.009	.009	6/82	2.94	.012
6	Achieve	.432	.186	.116	.010	.017	7/81	2.85	.016

orientation, greater participation in recreational activities, and less family organization.

The pattern of relationships between peer/family influences and alcohol consumption is different from that pattern found with alcohol problems. Alcohol consumption was not significantly related to peer influences. In this case, family environment influences appear to be more important than peer influences. Five common family environment scales entered into the full sample regression equation and the two cross validation equations. Increased consumption was significant related to moderate cohesion and expressiveness, less religious orientation, greater participation in recreational activities, and less intellectual-cultural involvement.

The aforementioned cautions regarding the family environment scales which appeared in these regression equations, as well as the ordering of the scales, apply to the results in this section.

Hypothesis #8 (Peer Versus Family Environment--Transition to Drinking)

Specific hypotheses regarding the relationship between peer/family variables and the transition to drinker status were limited to the speculation that peers may play a less significant role in determining adolescent drinking behaviors and attitudes than family environment. The lack of more specific hypotheses led to the utilization of analyses which were exploratory in nature.

In the subsequent analyses, the same procedures were followed as outlined in hypotheses #2 and #5 above. The peer variables include: (1) peer support for drinking, and (2) peer modeling of drinking behaviors.

With the full sample (Table 19), peer influences account for a significant amount of variance in predicting abstainer/normative drinker status ($R=.301$, $p < .01$). However, the data in the middle and lower portions of Table 19 demonstrate that in one cross validation equation, peer influences are not significantly related to the dependent variable ($R=.308$, $p > .05$) whereas in the other cross validation sample, the relationship is significant ($R=.312$, $p < .05$). The differences in the magnitude of R between the three samples are small and the associated statistical significance varies as a function of the degrees of freedom--which are larger in the full sample--and random error--which is greater in one cross validation sample than the other. Hence, it can be concluded that peer influences are probably marginally associated with drinking status.

After peer influences have been accounted for, family environment accounted for a significant amount of variance for the full sample and for one of the cross validation samples. Out of the 2 to 3 scales that stepped into the two significant equations, conflict was the only scale that entered into both equations. It appears that normative drinkers perceive their families as more conflicted than do abstainers.

School, Peer, and Parental Correlates

In order to gain a more complete picture of the phenomenon of risky driving during adolescence, three additional areas were examined: school commitment, peer influences, and perceived parental attitudes towards adolescent driving behaviors. The results of a regression analysis of adolescent risky driving, alcohol consumption, problem drinking, and transition to drinking with these three areas appear in Table 20, in the form of Pearson product moment correlations.

Table 19

A Mixed Hierarchical-Stepwise Regression Analysis, Examining the Correlations of Family Environment and the Transition to Drinking Index After Peer Support and Modeling Have Been Accounted For

Step	Variable	Multiple R	R Square	Adjusted R^2	R^2 Change	Simply R	DF	Overall F	Sig.
I.	Entire Sample:								
1	Peer support	.185	.034		.034	.185			
	Peer modeling	.301	.091	.084	.057	.268	2/167	9.11	.007
2	Conflict	.370	.137	.123	.046	.227	3/166	5.12	.007
3	Achieve	.378	.143	.130	.007	.156	4/165	4.21	.015
4	Religion	.394	.155	.142	.012	-.002	5/164	3.18	.029
II.	Cross Validation #1:								
1	Peer support	.230	.053		.053	.230			
	Peer modeling	.308	.095	.083	.042	.233	2/167	7.32	.009
2	Conflict	.383	.147	.132	.052	.258	3/166	6.97	.012
3	Achieve	.402	.162	.151	.015	.223	4/165	6.07	.016
4	Recreate	.438	.192	.174	.030	.013	5/164	3.71	.029
III.	Cross Validation #2:								
1	Peer support	.146	.021		.021	.146			
	Peer modeling	.312	.097	.086	.076	.304	2/167	4.78	.054
2	Conflict	.352	.124	.109	.027	.193	3/166	3.13	.081
3	Express	.386	.149	.131	.025	.180	4/165	2.64	.077
4	Religion	.402	.162	.152	.013	-.006	5/164	2.12	.104
5	Culture	.414	.171	.164	.009	.144	6/163	1.79	.139

Hypothesis #3 (Correlates of Adolescent Risky Driving)

Adolescents who perceive themselves to be riskier drivers report lower grade point averages ($p < .001$), greater absenteeism ($p < .01$), and fewer academic expectations ($p < .05$). In relationship to their peers, they see themselves as having more friends who have received moving violations ($p < .001$) and/or been involved in traffic accidents ($p < .001$). Further, more of their friends are frequent drinkers ($p < .01$). Surprisingly, they do not perceive their friends as encouraging risk-taking while driving, or excessive drinking, to a greater extent than do their safety- conscious counterparts. Finally, riskier drivers believe that their parents are more tolerant of adolescent drinking ($p < .05$) and risky driving ($p < .05$).

Hypothesis #6 (Correlates of Adolescent Drinking)

The correlations that appear in Table 20 under the quantity/frequency and problem drinking indices are based on the data from subjects who have already made the transition to drinking. The results indicate that heavier drinkers report lower grade point averages ($p < .001$); however, they do not differ from their lighter drinking counterparts on absenteeism or academic expectations. In terms of their peer group, heavier drinkers perceive their friends to be more supportive of adolescent drinking ($p < .05$) and risky driving ($p < .05$). However, in terms of the number of friends who drink, heavier drinkers do not differ from lighter drinkers ($p > .05$). The friends of the heavy drinkers appear to exhibit less caution in their driving practices, as is evident from the fact that they have been cited for more moving violations ($p < .05$). Finally, heavier drinkers

Table 20

Correlations Between School, Peer, and Parent Measures and the Drinking and Driving Measures

	Risky Driving Index	Quantity/ Frequency Index	Problem Drinking Index	Transition to Drinking Index
Peer support for drinking	.06 —	.13 *	.22 **	.20 **
Peer support for driving	.09 —	.16 *	.25 ***	.10 —
Friends with moving violations	.30 ***	.15 *	.15 *	.15 *
Friends who have accidents	.24 ***	.10 —	.09 —	.11 —
Friends who drink	.15 **	.12 —	.10 —	.27 ***
Parent approval of drinking	.11 *	.14 *	.26 ***	.18 **
Parent approval of driving	.13 *	.17 *	.24 ***	.08 —
Grade point average	-.32 ***	-.24 ***	-.32 ***	.02 —
Absenteeism	.17 **	.06 —	.31 ***	.03 —
Academic expectations	-.13 *	.00 —	-.08 —	.01 —

*** ($p < .001$).
** ($p < .01$).
* ($p < .05$).

believe that their parents are more tolerant of adolescent drinking ($p < .05$) and risky driving ($p < .05$).

The results for the problem drinking index are similar to the results for the quantity/frequency index with the exception that the magnitudes of the correlations are generally greater. Problem drinkers, in comparison to non-problem drinkers, report lower grade point averages ($p < .001$) and greater absenteeism ($p < .001$) but no difference in their academic expectations. Thus, they may not have given up all academic pursuits, but their behavior indicates that excellence in this area may be difficult or unrealistic. Similar to heavy drinkers, problem drinkers report receiving more peer ($p < .01$) and parental ($p < .001$) support for adolescent drinking and risky driving. Moreover, problem drinkers report knowing more friends who drink ($p < .05$) and who have received moving violations ($p < .05$). These facts might indicate that they either choose or somehow find themselves involved in a social climate which supports adolescent drinking.

Hypothesis #9 (Correlates of the Transition to Drinking)

The correlations for this measure are based upon the data from abstainers and non-problem drinkers. The results presented in Table 20 indicate that compared to normative drinkers, abstainers perceive differences in the amount of peer support that they receive for not drinking and in their parents' beliefs regarding drinking, but not in their degree of school commitment. Specifically, grade point average, absenteeism, and academic expectations were not related to drinking status ($p > .05$). However, non-drinking adolescents perceive their friends and parents to be less supportive of adolescent drinking ($p <$

.01). Moreover, abstainers report having fewer friends who drink ($p < .001$) and fewer friends who have been cited for a moving violation ($p < .05$).

A final point regarding the data presented in Table 20 deserves mention. The magnitude of the correlations between the drinking and driving measures, and the school, peer and parent measures differ. Problem drinking has the strongest relationship with the school measures, followed by problem driving; moreover, problem drinking is also strongly related to the peer and parental support measures of both drinking and driving. Problem drivers appear to have more friends who would also be classified as problem drivers and drinkers. Thus, the teenagers who are having problems with their drinking and/or driving might be thought of as less committed to traditional or adult prescribed rites of passage--such as academic excellence--and more committed to demonstrating their independence in the areas of drinking and driving. Despite the fact that their behavior in these areas tends to take on an exaggerated, perhaps even antisocial quality, they still perceive their friends and parents as supporting their efforts to assert their adulthood through these two channels.

Compared to non-problem drinkers, abstainers receive less support for and have fewer drinking role models. Despite the fact that they do not differ from normative drinkers on academic measures, they are able to maintain better grade point averages than adolescents who drink more alcohol on a frequent basis. Thus, both abstainers and light, non-problem drinking adolescents appear to be equally committed to school; however, as alcohol consumption increases or as problems associated with drinking increases, commitment to school decreases.

DISCUSSION

The findings from this study lend support to the general premise that perceived family environment is related to the transition to drinking and the management of drinking and driving practices among adolescents. However, the findings also suggest some modifications of the specific hypotheses regarding what constitutes a "functional" family system during the adolescent phase of development. It is evident that not all ten aspects of family environment, as measured by the Family Environment Scale, are equally important in their association with the target behaviors, nor do they manifest identical patterns of relationships to the two target areas. In the following chapter, the relationships between family environment and adolescent risky driving, alcohol consumption, problematic drinking, and the transition to drinking will be discussed, integrating the findings from this study with the existing literature in each respective area. Next, the question of how adolescent driving practices are linked to the transition to drinking and the management of alcohol consumption will be addressed by examining the empirical evidence from this study and other research and comparing the findings to existing theories. It was the premise of this study that adolescent drinking and driving are linked because of their status as rites of passage in American society. They may also share other commonalities which present theoretician with the task of specifying and integrating the associations between them.

A third area which deserves mention is the methodological questions and problems which arose during the execution of this study. Finally, directions for future work in the area of family environment correlates of adolescent drinking and risky driving will be suggested.

Adolescent risky driving. Initially, it was hypothesized that cohesion, expressiveness, organization, and control would be related to risky driving in a curvilinear fashion, such that adolescents who perceived their families as excessively high or low on these qualities would be more likely to engage in risky driving practices. In fact, the curvilinear relationship emerged for only one scale, cohesion, and the form of the relationship was in the opposite direction from what was expected. That is, riskier drivers perceived their families as moderately cohesive. However, the presence of a significant linear relationship suggests that adolescents at or above the median on cohesion report a lower incidence of risk taking during driving, while adolescents below the median present a mixed picture. With less perceived family cohesion, some of these adolescents engage in more risk taking, while at the lowest level of cohesion, many adolescents report few incidents of risk taking. These findings present two questions. First, why did the curvilinear relationship emerge on only one scale? Second, why was the relationship in the opposite direction from what was predicted?

The basis for positing the aforementioned curvilinear relationships rests on the assumption that these four family environment scales are similar to the cohesion-adaptability constructs proposed by Olson and McCubbin (1983). The stated definitions of the scales appear to be similar; however, their psychometric properties may

be different enough to render them separate but related measurements of family functioning. The exception to this conclusion appears to be cohesion since it was curvilinearly related to three out of the four dependent measures.

A second possibility centers around the scope of the circumplex model. Olson and McCubbin's curvilinear model of family functioning is a broad based model which was designed to relate to other criteria of healthy family functioning. In this study, the model is being applied to individual behaviors which are not inherent qualities of family functioning. Thus, the concept of a balanced family system may not be associated with individual behavior in the same way in which it is associated with other measures of family functioning; the associations are likely to vary in magnitude and direction. Such a pattern emerged with the findings from this study. The issue of the connection between system-level and individual level variables will be discussed in more detail later.

The direction of the association between cohesion and risky driving suggests a modification of the initial hypothesis. One of the main advantages of moderate family cohesion during the adolescent phase of development is that it allows the adolescent member some distance to try out new roles and to engage in behaviors which the family might not approve of. Thus, it was hypothesized that moderate cohesion would be associated with "normal" amounts of experimentation in the area of driving, and that exaggerated driving practices would be associated with either high or low levels of cohesion. However, it appears that risk taking, whether normal or exaggerated, is associated with a moderate level of cohesion. Perhaps such an environment is necessary

to engage in transitional behaviors, but is not sufficient to account for the differences between normal and exaggerated risk taking while learning to drive.

The existence of a significant linear relationship suggests that some distinction can be made between normal and risky drivers with regard to their perceived family cohesion. Within the moderate range, adolescents who perceive their families as less cohesive also report more risk taking. Perhaps at very high and low levels of cohesion, they lack the support, encouragement, and motivation to begin the processes of separation and individuation. On the other hand, at moderate levels they are able to engage actively in these processes although they still require more, rather than less family support in order to manage the tasks successfully. A study by Hotch (1979) lends support for this interpretation.

Hotch examined the style of home-leaving among a group of older adolescents. She found that an agent or active style was associated with moderate levels of family relatedness, whereas a patient or passive style was associated with both high and low levels of relatedness. Moreover, agentic adolescents reported higher career aspirations, anticipation for success, and personal motivation. Thus, Hotch concluded that among this group, the challenges involved in the transition from a dependent to an independent status were viewed as a challenge which could be mastered, and that the family served as a support structure for the adolescents. However, in families with high or low relatedness, the home environment was either too attractive or too lax to instill in the adolescents with the motivation to leave.

If some of the tasks and challenges inherent in this transition include the acquisition and management of adult-like behaviors, such as drinking and driving, then Hotch's interpretations fit nicely with the findings from this study. The difference lies in the ability to distinguish between at-risk drinkers and drivers. Along with variations on the dimension of cohesion, several of the other family environment scales suggest possible discriminators between at-risk and normative drivers.

The hypothesis that exaggerated risk taking would be associated with fewer avenues for individual growth was largely supported. Risky drivers report less of an emphasis on religion, recreation, and intellectual-cultural orientation; moreover, they report feeling less individuated from their families. Perhaps then, as Rommel (1959) concluded, reckless driving is used as a means to achieve self-worth and adult status. Support for this conclusion comes from the finding that risky drivers report greater school failure, and are thereby isolated from a socially approved form of individual recognition.

The literature further suggests that peer pressure and a need to impress one's peers may be prime contributors to the risks that some adolescents take while learning to drive. Indeed, this study found that risky drivers report having more friends who might be classified as risky drivers. However, even after the effects of peer influence have been accounted for, perceived family environment still plays a major role. Although similar findings have been reported in the literature (Harrington, 1971; Sobel & Underhill, 1976), these studies do not give adequate attention to the impact of family influences as they try to explain the phenomenon of adolescent risky driving.

Of interest in the present study is the lack of a significant relationship between family conflict and risky driving. The predominant finding in the driving literature which includes family variables is that adolescents report high levels of family anomie and discord. This apparent discrepancy may be explained by the manner in which conflict was measured in this study. All four questions refer to frequent verbally or physically expressed anger. However, the conflict in the families of at-risk drivers within this sample may be largely nonverbal, since these adolescents perceive their families as less expressive than the families of safer drivers. It may be that the conflict the adolescents experience is expressed through their driving behaviors or is acted out in some other way. Alternatively, risk-taking adolescents perceive their parents as more tolerant of adolescent drinking and risky driving perhaps, leading to less conflict over their behavior.

A final point regarding the findings on risk taking while driving is the emergence of a pattern of what will be termed "family disregard." Riskier drivers report perceiving their families as less organized, less controlling, and less involved in intellectual-cultural activities (a measure of societal connectedness or conservatism). Within such an unstructured environment, it would seem that the standards for appropriate behavior would be difficult to teach and enforce. With the simultaneous presence of friends who are engaged in risky driving practices, it is likely that these adolescents have both the influence and the opportunity to become antisocial in their driving practices. The antisocial quality of repeat traffic violators has been noted by many writers (Levonian, 1969; Pelz & Schuman, 1971; Goldstein,

1972). Moreover, Beamish and Malfetti (1962) noted the co-occurance of adolescent rebelliousness and a lack of involvement of parents in community and societal affairs among a group of repeat traffic offenders. Since cohesion--in its linear form--and intellectual-cultural orientation have the strongest associations with risky driving, it might be concluded that giving the adolescent a feeling of connectedness and responsibility to others, whether it be family or society, is an important way to promote safer driving practices.

Adolescent alcohol consumption. In explaining the findings regarding adolescent drinking practices, it is useful to take a closer look at the differences between the two indices. Problem drinking refers to conflicts that the adolescent has experienced with significant others--family, school personnel, peers, and law enforcement authorities--as a direct result of his/her drinking. The only reference to quantity of alcohol consumption is a general measure of frequency of drunkenness. On the other hand, the quantity/frequency index is a pure measure of alcohol consumption, without any consideration for the effects that the consumption may have on other aspects of the adolescent's life. Given these two measures, it is possible that two individuals can report equal alcohol consumption, yet experience very different degrees of associated problems. Hence, in the context of defining exaggerated drinking as a form of risk or problem potential, the problem drinking index is a much more pure measure of this concept. The quantity/frequency index may include connotations of problems, especially for the heavier drinkers, but the implication is at best tentative; this index can be conservatively thought of as a measure of the range of normative drinking, with the

extreme representing a risk potential group. With this distinction in mind, the results from this study provide some meaningful information regarding the family environment correlates of adolescent drinking.

The expression of the need to achieve adult status through drinking is most accurately represented as a spectrum of possible outcomes ranging from abstinence on one extreme, to problematic drinking on the other. Both extremes are statistically deviant groups with the majority of the spectrum consisting of adolescents who engage in normative drinking practices. To appreciate the extremes, one must understand the normative process. Thus, our discussion will begin with an examination of the findings regarding alcohol consumption.

Contrary to expectations, adolescents who consume greater amounts of alcohol more frequently perceive their families as moderately cohesive and expressive. The curvilinear relationship was insignificant for the system maintenance scales of organization and control. However, these results are in the same direction as the relationships found for the risky driving index. Employing the same explanation, perhaps the adolescents who are most agentic in expressing their need to individuate are the ones who are motivated to explore actively new adult-like behaviors. Hotch (1979) found this style of home-leaving to be associated with moderate degrees of family relatedness, a construct which is probably closely related to the cohesion and expressiveness variables in this study. In their quest for independence agentic adolescents are likely to over-indulge during this transitional period. From the work of Jessor and Jessor, we might also expect that they will be engaged in other forms of norm-violating behavior as well (1972).

The findings of moderate degrees of expressiveness and greater conflict in families in which adolescents take risks in drinking and driving suggest that these adolescents are actively engaging their families in the process of separation, and that this process involves some degree of turmoil. Olson and McCubbin's results support the conclusion that these characteristics are present in normal, well-functioning families. The adolescents who report limited and infrequent alcohol consumption perceive less conflict in their families and high or low levels of expressiveness. Within highly expressive families, the parents may be clearly and forcefully transmitting their values against alcohol resulting in compliance on the part of the adolescents and less conflict. Such a process may also indicate a slower rate of adolescent separation. Within less expressive families, the conflict may be curtailed due to the lack of emphasis on verbally expressing feelings. In either case, teenagers who consume less alcohol perceive their parents and friends as less approving of adolescent alcohol consumption, although the groups do not differ in the number of friends who drink.

Further support for the notion that the adolescents who are actively experimenting with alcohol are also more agentic in their style of home-leaving comes from the finding that they perceive themselves as more highly individuated. They view their families to be tolerant of the individuality of each member and flexible enough to allow personal growth pursuits. Moreover, these adolescents probably have more opportunity to drink since their families encourage recreational activities.

Only one area suggests that individuals who are heavier drinkers may be at risk for problems. Specifically, heavier drinkers report lower grade point averages, although their rate of truancies and their academic expectations do not vary from their lighter drinking counterparts. Since the group of heavier drinkers also contains a larger number of problem drinkers, it may be that the finding of lower grade point average is largely due to the difficulties experienced by this latter group. In comparing the correlations between academic failure and each of the drinking indices, the larger correlation between academic failure and problem drinking (problem drinking index = -.32; quantity/frequency index = -.24) suggests that this conclusion has some merit.

The group of adolescents above the median on the quantity/frequency index probably contains a fair number of adolescents who will experience difficulty with their drinking practices, and the aforementioned family representation provides no specifications for distinguishing between these two groups of drinkers. For such an understanding, we must turn to an examination of the problem drinking index.

Adolescents who report problems with their drinking manifest perceived family environments that are characterized by some of the qualities of parental disregard. Similar to riskier drivers, problematic drinkers report less organization and less intellectual/cultural orientation. Combined with greater peer and parental approval of exaggerated drinking and risky driving, there would appear to be a paucity of internal and external controls against the deviant or antisocial management of alcohol.

Viewing an admission of problematic drinking as an index of potential difficulty is further supported by the school experiences of adolescents in this group. They report the lowest grade point averages and the highest truancy rates. However, their academic expectations do not differ from their nonproblematic drinking counterparts. The future may present some harsh realities for these adolescents as they realize that their academic expectations will be difficult if not impossible to attain given their current academic performance.

The conflict that was predicted to exist in the families of problematic drinkers proved to be a significant discriminator only among females. Moreover, females who report problems with their drinking perceive their families to be more controlling, yet less organized. Within such an environment, the presence of demands with an accompanying lack of structure might lead to greater ambivalence on the part of the adolescent, and hence, greater conflict. The difference between the sexes might also be related to the double standards in our society. Independence and careless behavior are tolerated, perhaps even encouraged--"boys will be boys"--among males to a greater extent than they are among females. The lack of difference in the drinking patterns between females and males--a finding which has been contradicted by other research (Zucker & Hartford, 1980)--combined with the double standard suggests that females may be more susceptible to criticism for their behavior.

Finally, it is of interest that none of the affective qualities of the family environment proved to differentiate this group of drinkers from the group of non-problematic drinkers. Nor did four of the personal growth scales emerge as significant. Both normative and

problematic drinkers appear to perceive their families as possessing environmental qualities which would encourage separation and individuation--i.e., cohesiveness, expressiveness, moderate conflict, and an opportunity to engage in individual growth pursuits. However, problematic drinkers report an absence of some essential socializing elements. Perhaps the family's greatest contribution in influencing adolescents' drinking practices lies in the areas of transmission of values (regarding all forms of norm-violating behaviors) and organization.

The transition to drinking. An alternative approach to addressing the issue of family environment correlates of adolescent drinking is to examine the perceptions of abstainers and normative drinkers. Jessor and Jessor's (1975) work on the transition from non-drinker to drinker status has already been reviewed. For the purposes of this discussion, it is important to keep in mind their conclusion that drinking is a normal developmental phenomenon. Hence, abstainers are a statistically deviant group. According to the theory proposed herein, these adolescents have not begun to engage in the process of separation from family ties. If this is so, then they are likely to differ in their perceptions of their family environment. The findings from this study suggest that such differences do exist.

Rather than viewing their families as moderately cohesive, a quality which has been associated with normal family functioning during the adolescent phase of development, abstainers perceive their families as possessing either low or high cohesion. Perhaps the home is either too rewarding or too frustrating to allow them to focus their energies on separation issues.

Evidence for the hypothesis that abstainers are less involved in the processes of separation and individuation comes from the adolescents' perceptions of several other dimensions of family functioning. First, this group reports that there is less conflict in their families than the conflict which is reported in the families of their normative drinking counterparts. Since a higher level of family conflict is a normal part of this phase of the life cycle, the lack of stress might indicate a tranquility which precedes the onset of separation stressors. Second, abstainers believe that their families put less of an emphasis on achievement strivings. This finding appears to be largely due to the priority that normative drinking males put on achievement. Here again, the cultural gender biases emerge; by adolescence, males are expected to accept their adult mission of financial and occupational success, as measured by the FES achievement orientation scale. These pressures are not as strong for females and younger males. In this case, the difference between the males may have more to do with developmental rather than chronological maturity. Perceived individuation further differentiates between abstainers and normative drinkers, with the normative drinkers reporting higher levels of individuation. Finally, the abstainers perceived their families to be less controlling. In the presence of less conflict and fewer challenges to the central value structure of the family, parents can perhaps afford to be less controlling.

The values and models presented to abstaining youth tend to de-emphasize drinking. Both parents and peers are less approving of adolescent drinking; moreover, abstainers find themselves involved in a peer network where abstinence is the norm. The research evidence would

suggest that over the next few years, the majority of this group will enter into the normative drinking group. It would be interesting to note whether those who do not make the transition experience greater difficulty in exiting the family.

The negative relationships between drinking and school performance, noted with both the quantity/frequency and problem drinking indices, do not appear to play a part in separating normative and abstaining youth. Both groups report good school performance, high commitment, and high achievement expectations.

Overlap between drinking and driving status. The pattern of findings for the drinking measures are different enough from the pattern for driving measure to call into question the feasibility of viewing the two behavioral areas as outcomes of similar family dynamics. Moreover, only 52% of the exaggerated drinkers are risky drivers, although the majority (75%) of abstainers are safe drivers. The correlation between the two status groups is .25 ($p < .001$) indicating that they may share common etiologies; however, the search for explanatory factors should go beyond an examination of family dynamics.

Both the drinking and driving literature indicate that individual and social factors --i.e., antisocial behavior, school failure, and a desire to take risks--may be related to an exaggerated expression of drinking and driving (Zucker, 1971; Zucker, 1975; Jessor & Jessor, 1971; Goldstein, 1971; Harrington, 1971; Levonian, 1969). In this study, risky driving and problematic drinking were found to have several similarities. In terms of family environment, a pattern of relative family disregard emerged, resulting in less of a social

conscience and fewer internal and extenal restraints. Further, adolescents in these groups perceived greater peer support or modeling for engaging in these behaviors. Finally, the acquisition of risky behaviors was associated with greater school isolation and failure.

Jessor and Jessor (1985) examined the behaviors associated with this transitional phase in great detail. They found a cluster of behaviors which seemed to be a manifestation of a general antisocial tendency in a group of their adolescents. For example, adolescents who were problem drinkers were also more likely to get into fights with peers, parents and teachers, to be involved in illegal activities, and to have experimented with other narcotics. Although risky driving was not one of the behaviors that they examined, the findings from this study and other research suggest that it may be an expression of antisocial tendencies in a circumscribed group of adolescents.

It is clear that the phenomena of adolescent drinking and driving are complex, involving some degree of overlap. It is likely that an explanation of the overlap would require several constructs, perhaps including the ideas of rites of passage and antisocial behavior.

Methodological considerations. Several methodological issues developed during the course of this study. First, it is clear that the kinds of interpretations one can make regarding drinking or driving will vary depending on how these phenomena are measured. At this time, it is not clear how alcohol consumption relates to problem drinking, or, for that matter, how problem drinking is to be defined. Thus, the best measures we have are comprised of multiple items which render themselves amenable to a summation index. Analyzed individually, the

results from the separate items are likely to be different and difficult to integrate.

A second methodological consideration revolves around the power of studies to detect relationships between distal factors--such as family functioning--and criterion variables. This issue appears to be related to the question of level of measurement and has been addressed in some areas of psychology, such as organizational behavior (Schneider, 1983). At the heart of the issue is the determination of how different levels of a system interact, how each level can be conceptualized and measured, and how the various levels can be connected to one another. Studies in applied psychology, and in the areas of drinking and driving in particular, tend to show stronger relationships between behavioral predictor and behavioral criterion variables. For example, in this study, peer modeling of moving violations, a behavior, was the best predictor of adolescent risky driving, also a composite of behaviors. The question becomes one of associating group level variables, such as family environment--also referred to as distal variables--with individual level variables, such as behavior.

The procedures for measuring a construct that is part of a dynamic process present many complex problems. Furthermore, if a behavior derived from a construct is not directly observable, the error associated with its measurement increases. In conducting family research, it is difficult to obtain significant results because the hypothesized family constructs tend to be dynamic and not directly observable--referred to frequently as distal constructs. Hence it is difficult to operationalize and measure the constructs. The greater

measurement error is naturally associated with a general reduction in the power of the study.

Beyond the issue of intralevel measurement is the issue of defining connections between links. The associations between interlevel constructs will tend to be weaker than the links between intralevel constructs. Again, the key to increasing the power of the study to identify the interlevel links is to identifying the major connections and to measure them with as much accuracy as is possible.

Once a problem within a systems framework has been operationalized, it is necessary to make the generalizations appropriate to the levels that are being measured. In this study, family environment was defined in terms of the adolescent's perceptions. Hence, the generalizations need to speak to the individual's reconstruction of system level phenomena. In order to obtain a more objective view of the family environment, family interactions would have needed to be coded by an observer. Alternatively, individual perceptions could have been pooled across several family members, yielding a systems-level perception rather than an individual perception.

From the aforementioned discussion, it is clear that the kinds of obstacles involved in doing family research are numerous, and the relationships which do emerge can be considered robust--given the general lack of power in these kinds of studies. However, the results from this study should be interpreted and generalized with caution since it is intended to be explanatory in nature and it is based on individual perceptions of a dynamic process involving many interacting

constructs. Further studies utilizing sophisticated methodologies are needed.

A related methodological issue concerns specific features which affected the power of this study. The internal consistency scores of the scaled items were low to moderate, reducing the probability of detecting actual relationships. It may be that the internal consistencies are lower than expected because of the nature of the testing situation. These questions were included in the second administration of a series of questionnaires designed to develop and evaluate the effectiveness of a drivers education program. Some students expressed resentment with the length of the questionnaire, as well as concern that their responses would not be kept confidential. These factors probably contributed to the lowered scale reliabilities, as well as other systematic error. The result was a reduction in statistical power. However, an examination of the adjusted R statistics suggests that the shrinkage due to error is not great. Thus, the results that did appear are probably fairly robust. If the sources of measurement error had been reduced, more associations might have been identified, yielding a more complete and accurate picture of the phenomena addressed in this study.

Finally, the ability of this study to detect sex differences was also reduced due to the lowered statistical power and the number of variables compared to the total number of subjects. The psychological literature is replete with studies which report sex differences based upon separate analyses of the data for males and females. Such a method is fallacious given that (1) the error terms are not independent, (2) the number of subjects differ for each analysis,

yielding different degrees of freedom for the tests of significance, and (3) the value of the error terms vary. If the conclusions made from interpreting the results obtained by analyzing the data separately for each sex go beyond gender-specific descriptions to a comparison of the two profiles, the conclusions should be considered suspect. In order to make direct comparisons, an analytic technique which includes a sex by predictor interaction term should be employed. In this study, such an analysis was conducted; however, after the main effects were entered into the regression equations, the degrees of freedom associated with the interaction terms were probably not great enough to detect the differences which might exist. Since many studies in the area of adolescent drinking and driving have failed to consider these obstacles, the number of sex differences which are reported may be inflated.

Future directions. Based upon the results of this study, a number of suggestions can be made regarding future work in the area. First, the overall power of the research can be enhanced by being aware of systems issues in designing and conducting research; utilizing multivariate, correlational data analytic techniques; sampling from large, representative populations; and limiting the number of variables relative to the sample size.

Secondly, the theory presented herein considered that aspects of ego functioning may be related to the links between family system characteristics and individual behavior. It may be helpful to measure ego functioning--i.e., Marcia's four statuses of identity resolution--directly.

Third, it would be useful to explore the relationship between normal and deviant expressions of adolescent drinking and driving. An example of such a model has been discussed in the work of Jessor and Jessor (1985).

Finally, longitudinal or cross sequential research is needed in order to assess directly the course that different adolescents and their families follow as they struggle with the processes of separation and individuation. Moreover, such research could relate changes in the adolescent's drinking and driving habits, as well as other behaviors considered to be rites of passage, to changes in the family's ability to cope with the fluctuating needs of their independence-bound adolescents. The suggestion of such a link, at this point, is merely tentative.

SUMMARY

This study sought to examine the influences of the family social climate on the normal adolescent processes of separation and individuation. It was hypothesized that adolescents' management of alcohol consumption and driving practices, two areas of behavior considered rites of passage in American society, would be influenced by the manner in which they were separating from their families of origin and consolidating their sense of individual identity. Thus, an examination of drinking and driving practices, together with information on their performance and involvement in school (another source of socially approved status for adolescents) would have implications for the amount of turmoil adolescents experience as they attempt to master an important developmental task: establishment of a sense of self that integrates childhood/family experiences and adult role expectations. Furthermore, perceptions of family environment--e.g., relationships, personal growth options, and system maintenance features--were hypothesized to influence these processes by eitherequipping or failing to equip adolescents with essential ego resources and coping skills.

These hypotheses were examined utilizing a questionnaire methodology with 244 high school junior and senior licensed drivers who were involved in a school-based driver's awareness program--Promoting

Responsible Young Drivers through Education. Several variables were examined: (1) family climate--Family Environment Scale (Moos, 1974), (2) quantity/frequency drinking index, (3) problem drinking index, (4) transition to drinking index, (5) risky driving index--e.g., accidents, moving violations, and close calls, (6) school commitment--e.g., GPA, truancy, academic expectations, and (7) social environment influences--e.g., peer and parental support for and modeling of exaggerated drinking and driving practices.

The results were detailed, providing some support for the hypotheses, and suggesting further modifications. Integrating the specific results yielded several important findings. First, family environment variables were indeed related to adolescent drinking and driving practices, even after accounting for peer influences. Developmentally, initiation into drinking occurs prior to initiation into driving (Zucker, personal communications). Thus, the fact that more family variables were related to driving practices than to drinking practices suggested that family influences may be most apparent during the period of transition, and then become less obvious as other factors--e.g., peer influences and societal norms--increase in salience.

A second important finding was the role that family environment played in differentiating "normal experimentation" from exaggerated and problematic involvement. Risky drivers and problematic drinkers perceived their families to be less organized and less connected with the community. Additionally, risky drivers viewed their families as less controlling. This constellation of factors was termed "familial disregard" and indicated that these youngsters may be ill-equipped to

manage appropriately the transitional demands of adolescence. Further, it was speculated that their supply of ego resources may be attenuated by a history of failure to provide adequately for personal needs.

Related to the issue of differentiating between normative and exaggerated drinking and driving practices was the finding that social and academic factors changed as one moved up the continuum from abstinence to drinking, or safe driving to risky driving. Specifically, as the evidence for ineffective management of drinking and driving increased, status derived from socially sanctioned activities, such as school, decreased. Moreover, the social environment appeared to change such that deviant behavior was supported by peer and parental attitudes and behavior. These findings were consistent with the literature on the emergence of antisocial behavior, and suggested that family environment may play a role in the development of such patterns.

Finally, it appeared that certain aspects of family functioning were associated with behavior reflective of normative experimentation and accompanying struggle. In order to begin the process of separation, the family in the adolescent phase of development may need to provide a moderate degree of cohesion. Too much cohesion may make the nest too appealing to leave, while not enough cohesion may cause undue separation anxiety. Moderate expressiveness allows the family to transmit important values while also allowing for the expression of disagreement and conflict. Youth in this type of family environment perceived themselves to be more individuated, while other family environment configurations were associated with fewer personal growth

options. These patterns were consistent with the findings of Olson and McCubbin (1983) and Koch (1979).

Extrapolating from these findings, one can develop a profile of adolescents who may be at risk for experiencing difficulty in consolidating a sense of identity manifest in problematic drinking and/or careless driving. These adolescents are likely to begin drinking at an earlier age, and to be engaged in other forms of antisocial behavior (Zucker & Hartford, 1980; Jessor & Jessor, 1972). They are likely to perceive the family environment as disengaged, failing to provide adequate affectional ties as well as socialized values. Consequently, the adolescents may turn to peers with similar values and behavior, further consolidating the deviant practices. Some of these young people may come to feel increasingly cut off from the larger community that could be used as an alternative for obtaining guidance and support. As energy is devoted toward binding anxiety associated with premature or ill-equipped independence, there is less energy and motivation available for mastery of other socially appropriate avenues of adult status--e.g., academic competency.

The theoretical literature on adolescent development provides a framework for these observations. Marcia (1980) describes some of these adolescents as reflecting role diffusion, though many of them may appear to be at the moratorium status. Normative drinkers and drivers could also be described as being at the moratorium status. The difference between these two groups is that problematic drinkers and/or risky drivers are probably at much greater risk for failure to make an adequate transition into adulthood, and for further manifestation of deviant behavior. Longitudinal data of both a behavioral and emotional

nature is needed in order to clarify these issues. Moreover, family life span research, which takes a developmental focus, can further delineate the ways in which family environment influence these processes.

APPENDICES

APPENDIX A

STUDENT QUESTIONNAIRE

APPENDIX A

STUDENT QUESTIONNAIRE

This is a questionnaire that deals with a person's attitudes and behaviors towards both driving and drinking. Most people find these questions both interesting and easy to answer.

Do not begin until you are told to do so. For some questions you will check one or more answers and/or write your answer. Some of the questions might not apply to you; leave them blank. If you have any questions, please raise your hand and someone will help you.

THIS QUESTIONNAIRE IS COMPLETELY CONFIDENTIAL. No one will know what your answers are, so please be as precise as possible.

NAME_____

TODAY'S DATE_____

PARTICIPATION IN THIS STUDY IS COMPLETELY VOLUNTARY. YOUR COMPLETION OF THE QUESTIONNAIRE CONSTITUTES YOUR ASSENT TO PARTICIPATE.

PLEASE ANSWER THE FOLLOWING ABOUT YOURSELF.

1. My age is:
   A. younger than 13 years
   B. 13
   C. 14
   D. 15
   E. 16
   F. 17
   G. 18
   H. 19
   I. older than 19 years

2. I am:
   A. Male
   B. Female

3. My grade in school:
   A. 9th
   B. 10th
   C. 11th
   D. 12th

4. My racial identity is:
   A. White (not Hispanic)
   B. Hispanic
   C. Black (not Hispanic)
   D. Native American
   E. Asian

5. My parents are divorced or separated:
   A. Yes
   B. No

6. My grades in school are mostly:
   A. A's
   B. B's
   C. C's
   D. D's
   E. F's

7. How many non-classroom activities do you participate in (for example, student council, sports, clubs, church/community groups, etc.)? _____

8. The number of days I have been absent from school this year is:
   A. 5 days or less
   B. 6 to 10 days
   C. 11 to 15 days
   D. 15 to 19 days
   E. 20 or more days

9. I have been involved in an automobile accident (either as a driver, passenger or pedestrian) in which alcohol was a factor. (Circle as many as apply to you)
   A. I was the driver
   B. I was the passenger
   C. I was the pedestrian

10. If a high school student wanted an alcoholic beverage:
   A. it would be easy to get a hold of
   B. it wouldn't be easy, but if a person really wanted it, they could get it
   C. it would be nearly impossible to get a hold of

11. I have a:
   A. drivers license
   B. learners permit
   C. neither a drivers license or a permit

   If you answered "C" to the last question (#11), skip to question #15.

12. When I want a car to drive somewhere:
   A. I have my own car
   B. I do not own my own car, but it is pretty easy to get a hold of one
   C. it wouldn't be easy, but if I really wanted a car, I could get a hold of one
   D. it would be nearly impossible to get a hold of one

13. How many auto accidents have you been involved in:
   ____ as a driver?
   ____ as a passenger?
   ____ as a motorcyclist?

14. How many "near misses" or "close calls" have you been involved in as a driver:
   A. nearly every day
   B. almost once a week
   C. almost once a month
   D. only rarely
   E. never

15. I wear a seat belt:
   A. always
   B. often
   C. sometimes
   D. rarely
   E. never

BELOW IS A SET OF STATEMENTS ABOUT DRINKING AND ABOUT DRIVING AFTER DRINKING. WE ARE INTERESTED IN YOUR PERSONAL REACTION TO EACH STATEMENT. PLEASE INDICATE THE DEGREE TO WHICH YOU PERSONALLY AGREE OR DISAGREE WITH EACH STATEMENT BY CIRCLING THE LETTER IN FRONT OF THE ANSWER WHICH BEST DESCRIBES HOW YOU FEEL ABOUT THE STATEMENT. REMEMBER, THERE ARE NO RIGHT OR WRONG ANSWERS; WE ARE INTERESTED ONLY IN YOUR PERSONAL REACTIONS.

16. I would not be accepted by my friends unless I drank.
    A. Strongly Agree
    B. Agree
    C. Disagree
    D. Strongly Disagree

17. When I am with my friends, I feel uncomfortable asking for non-alcoholic beverages at occasions where alcoholic beverages for being served.
    A. Strongly Agree
    B. Agree
    C. Disagree
    D. Strongly Disagree

18. I feel uncomfortable around friends who do not drink if I am drinking.
    A. Strongly Agree
    B. Agree
    C. Disagree
    D. Strongly Disagree

19. At social occasions with my friends, drinking alcoholic beverages is a fairly common activity.
    A. Strongly Agree
    B. Agree
    C. Disagree
    D. Strongly Disagree

20. As far as I know, none of my friends are too concerned about wearing seat belts.
    A. Strongly Agree
    B. Agree
    C. Disagree
    D. Strongly Disagree

21. I would feel uncomfortable asking a friend to slow down if I felt he/she was driving too fast or carelessly.
    A. Strongly Agree
    B. Agree
    C. Disagree
    D. Strongly Disagree

22. Driving around, or "cruising" is an important activity among my friends. We do it whenever we can.
    A. Strongly Agree
    B. Agree
    C. Disagree
    D. Strongly Disagree

23. I would not be accepted by my friends if I payed attention to all traffic regulations--i.e., if I didn't speed or roll a stop once in a while.
    A. Strongly Agree
    B. Agree
    C. Disagree
    D. Strongly Disagree

24. I would not be accepted by my friends if I tried to prevent them from driving after drinking too much.
    A. Strongly Agree
    B. Agree
    C. Disagree
    D. Strongly Disagree

25. I would ask a friend to drive me home if I felt I had too much to drink and drive safely.
    A. Strongly Agree
    B. Agree
    C. Disagree
    D. Strongly Disagree

26. My friends would understand if I refused to get in the car with a friend I thought had too much to drink and drive safely.
    A. Strongly Agree
    B. Agree
    C. Disagree
    D. Strongly Disagree

27. Driving after drinking is fairly accepted among my friends.
    A. Strongly Agree
    B. Agree
    C. Disagree
    D. Strongly Disagree

PLEASE ANSWER THE FOLLOWING QUESTIONS ABOUT YOURSELF, YOUR OWN USE AND NON-USE OF ALCOHOL, AND YOUR DRIVING BEHAVIOR.

28. In the past six <u>months</u>, how often would you say you drank any alcoholic beverage? (Circle one)
    A. Never drank in the past 6 months
    B. Less than once a month
    C. About once a month
    D. Two or three times a month
    E. About once a week
    F. Two-six times a week
    G. At least once a day

29. How many times would you estimate that you have gotten drunk or pretty high on alcohol during the past years?
    A. Once a week or more
    B. Twice a month
    C. Once a month
    D. 6-10 times during the year
    E. 4-5 times during the year
    F. 2-3 times during the year
    G. 1 time during the year
    H. None

30. Over the past year, how many times would you say you drove a car after you had had too much to drink?
    A. Once a week or more
    B. Twice a month
    C. Once a month
    D. 6-10 times during the year
    E. 4-5 times during the year
    F. 2-3 times during the year
    G. 1 time during the year
    H. None

31. Over the past year, how many times were you a passenger in a car when the driver had had too much to drink?
    A. Once a week or more
    B. Twice a month
    C. Once a month
    D. 6-10 times during the year
    E. 4-5 times during the year
    F. 2-3 times during the year
    G. 1 time during the year
    H. None

32. During the past year, how many times have each of the following happened to you? (Mark one oval for each question or row.)

None	Once	2-3 Times	4-5 Times	6-9 Times	10 or more Times	
( )	( )	( )	( )	( )	( )	You've gotten into trouble with your teachers or principal because of your drinking.
( )	( )	( )	( )	( )	( )	You've gotten into difficulties of any kind with your friends because of your drinking.
( )	( )	( )	( )	( )	( )	You've gotten into trouble with the police because of your drinking.
( )	( )	( )	( )	( )	( )	You've driven when you've had a good bit to drink.
( )	( )	( )	( )	( )	( )	You've been criticized by someone you were dating because of your drinking.
( )	( )	( )	( )	( )	( )	You've gotten into trouble with your parents because of your drinking.

33. During a 3 hour social occasion, how many total drinks would you have?
   A. None--I don't drink
   B. 1-3 drinks
   C. 4-6 drinks
   D. 7-9 drinks
   E. 10-12 drinks
   F. 13 or more drinks

NOW WE WOULD LIKE TO ASK YOU SOME QUESTIONS ABOUT YOUR FRIENDS' DRINKING AND DRIVING BEHAVIORS.

34. As far as you know, about how many of your friends drink alcohol at least sometimes?
   A. None of them drink alcohol
   B. 1-2
   C. Several
   D. Most of them
   E. All of them

35. As far as you know, about how many of your friends have received a traffic ticket for a moving violation?
    A. None of them have received a ticket
    B. 1-2
    C. Several
    D. Most of them
    E. All of them

36. As far as you know, about how many of your friends have been involved in a traffic accident as a driver?
    A. None of them have been in an accident
    B. 1-2
    C. Several
    D. Most of them
    E. All of them

37. As far as you know, about how many of your friends have driven a car after drinking too much?
    A. None of them drink and drive
    B. 1-2
    C. Several
    D. Most of them
    E. All of them

NOW WE WOULD LIKE TO ASK YOU SOME QUESTIONS ABOUT YOUR FAMILY'S FEELINGS RELATED TO DRINKING AND DRIVING.

38. How do you think your parents (or your family) feel about people your age drinking?
    A. Strongly approve
    B. Approve
    C. Don't care one way or the other
    D. Disapprove
    E. Strongly disapprove
    F. I don't know

39. How do you think your parents (or your family) feel about people your age driving after they have been drinking?
    A. Strongly approve
    B. Approve
    C. Don't care one way or the other
    D. Disapprove
    E. Strongly disapprove
    F. I don't know

40. How do you think your parents (or your family) feel about people your age ignoring traffic laws from time to time?
    A. Strongly approve
    B. Approve
    C. Don't care one way or the other
    D. Disapprove
    E. Strongly disapprove
    F. I don't know

THE NEXT SET OF QUESTIONS ARE STATEMENTS ABOUT FAMILIES. YOU ARE TO DECIDE WHICH OF THESE STATEMENTS ARE TRUE OF YOUR FAMILY AND WHICH ARE FALSE. IF YOU THINK THE STATEMENT IS TRUE OR MOSTLY TRUE OF YOUR FAMILY, CIRCLE THE LETTER "T". IF YOU THINK THE STATEMENT IS FALSE OR MOSTLY FALSE OF YOUR FAMILY, CIRCLE THE LETTER "F".

41.	Family members really help and support one another.	T	F
42.	Family members often keep their feelings to themselves.	T	F
43.	We fight a lot in our family.	T	F
44.	We don't do things on our own very often in our family.	T	F
45.	We feel it is important to be the best at whatever we do.	T	F
46.	We often talk about political and social problems.	T	F
47.	We spend most weekends and evenings at home.	T	F
48.	Family members attend church, synagogue, or Sunday School fairly often.	T	F
49.	Activities in our family are pretty carefully planned.	T	F
50.	Family members are rarely ordered around.	T	F
51.	We often seem to be killing time at home.	T	F
52.	We say anything we want to around home.	T	F
53.	Family members rarely become openly angry.	T	F
54.	In our family, we are strongly encouraged to be independent.	T	F
55.	Getting ahead in life is very important to our family.	T	F
56.	We rarely go to lectures, plays or concerts.	T	F
57.	Friends often come over for dinner or to visit.	T	F
58.	We don't say prayers in our family.	T	F
59.	We are generally very neat and orderly.	T	F
60.	There are very few rules to follow in our family.	T	F
61.	We put a lot of energy into what we do at home.	T	F
62.	It's hard to "blow off steam" at home without upsetting somebody.	T	F
63.	Family members sometimes get so angry they throw things.	T	F
64.	We think things out for ourselves in our family.	T	F

65. How much money a person makes is not very important to us. T F

66. Learning about new and different things is very important in our family. T F

67. Nobody in our family is active in sports, Little League, bowling, etc. T F

68. We often talk about the religious meaning of Christmas, Passover, or other holidays. T F

69. It's often hard to find things when you need them in our household. T F

70. There is one family member who makes most of the decisions. T F

71. There is a feeling of togetherness in our family. T F

72. We tell each other about our personal problems. T F

73. Family members hardly ever lose their tempers. T F

74. We come and go as we want to in our family. T F

75. We believe in competition and "may the best man win." T F

76. We are not that interested in cultural activities. T F

77. We often go to movies, sports, events, camping, etc. T F

78. We don't believe in heaven or hell. T F

79. Being on time is very important in our family. T F

80. There are set ways of doing things at home. T F

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