

RESEARCH REPORT

Young-adult children of alcoholic parents: protective effects of positive family functioning

ELIZABETH M. HILL, JANET L. NORD & FREDERIC C. BLOW

University of Michigan Alcohol Research Center, Department of Psychiatry, Ann Arbor, Michigan, USA

Abstract

The occurrence of alcoholism is clustered within families, but the detrimental effect of a positive family history may vary with the degree of family impairment involved. In this study we assessed the effects of family history and family environment on alcohol misuse. From ongoing studies we recruited parents who had a child aged 18-30, 20 with a DSM-III-R alcohol dependence diagnosis, 20 without. The child then completed a multidimensional assessment. The young-adult participants included 20 men and 20 women (mean age = 24.8). Differences by family history were restricted to substance abuse behaviors. While a high level of alcohol problems occurred in both groups, those with an alcohol-dependent parent were more likely to be heavy drinkers and showed more symptoms of alcohol dependence. Overall psychological adjustment did not differ between the groups, however. Alcohol misuse measures did correlate moderately with symptoms of poor emotional health. The most important correlates of alcohol misuse measures in this study were exposure to parental alcoholism, abusive punishment, and psychological symptoms, with some separation of effects in the two subgroups. Psychological symptoms had a stronger relationship with misuse in subjects with social-drinking parents, while abuse was more associated in the group with an alcohol-dependent parent. These results confirm the importance of environmental interactions with familial risk. A biological vulnerability from an alcohol-dependent parent was not sufficient or necessary for the participants in this study to develop alcohol dependence as a young adult, although there was an increased risk. There appear to be strong protective effects of positive family relationships on the potential negative effects of a family history of alcoholism.

Introduction

It has long been recognized that the occurrence of alcohol dependence is clustered within families. However, the majority of offspring in high-risk families do not develop alcohol dependence (Cot-

ton, 1979; Goodwin, 1979). The detrimental effects of a positive family history may vary with the degree of family impairment caused by a parent's drinking. In families with an alcohol-dependent parent, children are more protected when there are positive parent-child relationships and less marital conflict (Bennet, Wolin and Reiss, 1988; Werner, 1986). Few studies, however, have linked the disruption of family functioning in alcoholic families with development of specific drinking behaviors in offspring. In this study we assessed the effects of both family history and family environment on alcohol misuse in young adults.

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Evidence for genetic transmission of alcohol misuse

Evidence that alcoholism has a specific genetic basis comes from three research areas: twin studies that show a higher concordance in monozygotic than dizygotic twins (Kaij, 1960), adoption studies that show a larger influence of biological than adoptive parents (Cloninger, Bohman & Sigvardsson, 1981; Roe, 1944), and linkage analyses that show suggestive evidence of a major gene (Hill, Aston & Rabin, 1988; Tanna *et al.*, 1988). It has been very difficult to determine the precise biological mechanism that is transmitted; candidates have ranged from physiological or psychological responses to alcohol (Schuckit, 1980) to differences in temperamental characteristics such as emotionality or sociability (Tartar, Alterman & Edwards, 1985). Twin studies are difficult to generalize; virtually all of the adoption studies have been highly criticized for cursory specification of possible environmental or intrauterine influences, diagnostic criteria, and statistical analyses (Littrell, 1988; Searles, 1988; Zucker, 1986); and none of the linkage studies is conclusive.

Other evidence comes from studies of individuals at increased risk for developing alcoholism because of having an alcohol-dependent ancestor. A positive family history appears to predispose individuals to have more severe symptoms, if they become alcohol-dependent. In several studies, patients with a positive family history had more dependence symptoms, more consequences from misuse, higher measured preoccupation with alcohol, and a greater likelihood of daily drinking (Harwood & Leonard, 1989; Hesselbrock, Hesselbrock & Stabenau, 1985; McCord, 1988; Stabenau, 1984). Evidence is lacking that consumption level varies (Hesselbrock *et al.*, 1987; Benson & Heller, 1987); nevertheless, having an alcohol-dependent parent increases the likelihood of experiencing adverse consequences from drinking. Two studies with a college-age population have found no effect of family history on the quantity or frequency of alcohol consumption (Knowles & Schroeder, 1989) or on screening test scores (Berkowitz & Perkins, 1988). However, results indicated negative effects of a family history on interpersonal consequences of drinking, such as loss of friends or criticism from dates (Knowles & Schroeder, 1989), and on physical problems (Knowles & Schroeder, 1989).

Thus, previous research has shown that children of alcohol-dependent parents are more likely to show alcohol problems as adults, such as symptoms of dependence and interpersonal consequences from

alcohol use. Familial transmission of alcoholism appears to be clearly documented. In high-risk studies, however, the effect of any biologically transmitted susceptibility is confounded with the effect of being reared in an environment created by alcohol-dependent parents. The family environment can have a strong influence on whether the biological vulnerability is expressed.

Family environmental effects on transmission of alcohol misuse

Many of the effects on children of parental alcoholism may be nonspecific, as has been shown for parental depression. In general, parental impairment, whether or not related to alcohol problems, can dramatically affect family systems, which in turn affect psychological adjustment of children (Downey & Coyne, 1990). Alcohol-dependent persons are less likely to maintain stable relationships than others, as evidenced by more frequent divorces (Paolino, 1978) and higher relationship distress (O'Farrell & Birchler, 1987; Zucker 1986). Problem drinking is implicated in most cases of violence between spouses (reviewed in Miller, Downs & Gondoli, 1989; Orford, 1990). Financial strain, marital conflicts, social isolation, and altered interactions result in disrupted parenting, evidenced by poor socialization and lack of nurturance of children (Seilhamer & Jacob, 1990). The effects of parental alcohol dependence hamper the development of differentiation and complexity in family roles (Steinglass, 1980). In one observational study of family interaction, the behavior of the alcohol-dependent parents was very different in sober vs. intoxicated states (Steinglass *et al.*, 1987). One mediating process in family disorganization is the inability of alcohol-dependent parents to exhibit 'deliberateness' and consistency in developing family ritual and role responsibilities (Bennett *et al.*, 1988). Reich, Earls & Powell (1988) found that children of alcohol-dependent parents experienced a worse home environment than controls, when measured by marital conflict and parent-child conflict. In addition, such families may show aberrant structures and cross-generational coalitions against the alcohol-dependent parent (Preli & Protinsky, 1988). Adolescents with alcohol-dependent parents show less attachment to parents and more hostility toward parents, and they report fewer interactions among family members and less family warmth (Johnson & Padina, 1989).

Some of the negative effects on spouses have been

shown to result from the alcohol-dependent person's impairment in other areas, such as occupational problems or physical symptoms (Finney *et al.*, 1983). In the families studied by Reich *et al.* (1988), when parent-child relationships were positive, there were fewer disturbed children. Similarly, less 'deliberateness' and consistency by parents in developing family ritual and role responsibilities increased the frequency of behavioral and emotional problems in children of alcohol-dependent parents (Bennett *et al.*, 1988). Werner (1986) found that by age 18, 41% of the children of alcohol-dependent parents had serious problems at home, school, work, or in the community. Most importantly, though, fewer problems occurred if a child had good, low-conflict care for the first 2 years of life. Thus, alcohol dependence in a parent clearly has negative effects on family systems, which can have far reaching effects on the psychosocial characteristics of children.

Despite extensive previous research on genetic and familial risk factors for the development of alcohol problems in adolescence and young adulthood, most studies have not integrated biological, socio-cultural, interpersonal and intrapersonal processes into a single conceptualization. The simultaneous conceptualization and measurement of family history and environmental factors that may interact in facilitating or preventing alcohol misuse could provide a powerful approach to investigating and understanding this complex field. Figure 1 displays a conceptual model of possible relationships among family history, family functioning, and alcohol misuse. The effect of family history on alcohol misuse is seen as working in conjunction with parental alcohol-specific socialization. This concept is operationalized as having two components, the intensity (severity, chronicity) of family alcoholism, and the degree of exposure to family alcoholism (duration of contact). The other major interpersonal construct is non-alcohol-specific socialization, capturing most aspects of family functioning (i.e. family conflict and the quality of parent and parent-child relationships). The predicted mediating and moderating variables between family history and alcohol misuse are shown. Portions of the model were tested in this study. Familial effects on alcohol misuse were tested by comparing young adults with an alcohol-dependent parent to those without one. The relationship of interpersonal adjustment measures to alcohol misuse and the effects of non-alcohol-specific socialization variables were tested in the full sample. In the group with an alcohol-

dependent parent, we tested the effects of variables measuring the intensity of both alcohol-specific socialization and non-alcohol-specific socialization.

Methods

Procedure

From ongoing studies at The University of Michigan Alcohol Research Center (UMARC), we recruited parents who had a child aged 18-30 for possible participation in this study. Parents were initially recruited to participate in a variety of research protocols currently underway at the UMARC. Recruitment strategies for these parents included: placing advertisements in local newspapers; direct mailings to various groups such as University Alumni or service organizations; interviewing patients in treatment at several local alcoholism treatment programs; and enlisting patients in hospital for alcohol and non-alcohol related medical problems. From our large pool of research participants, eligible parents (those with a child in the appropriate age range) were asked for consent to contact their children, and were asked to provide current addresses and telephone numbers. Participants were contacted sequentially until 20 were recruited for each group. More parents in the study were fathers than mothers of the young adults, but the number of mothers interviewed was equal in the two groups. Of the 45 parents approached, 89% (40) consented. Twenty parents were recruited who had a DSM-III-R alcohol dependence diagnosis and 20 who did not. Interviews with the parents yielded information about lifetime drinking patterns and consequences. If more than one child existed as a potential subject, the one closest to age 25 was approached; if they were equidistant to age 25, one was chosen randomly. The participants were informed that the purpose of the study was to examine alcohol use and childhood experiences in a variety of families. Of the 46 children called, 87% agreed (20/26 children of alcohol-dependent parents, 20/20 of social-drinking parents). The young adults were assessed by interviewers blind to their parental status using a diagnostic interview for substance abuse, a lifetime drinking history and an assessment of early home environment. They also completed self-report assessments of psychological symptoms and social adjustment. Subjects received \$25 for participating.

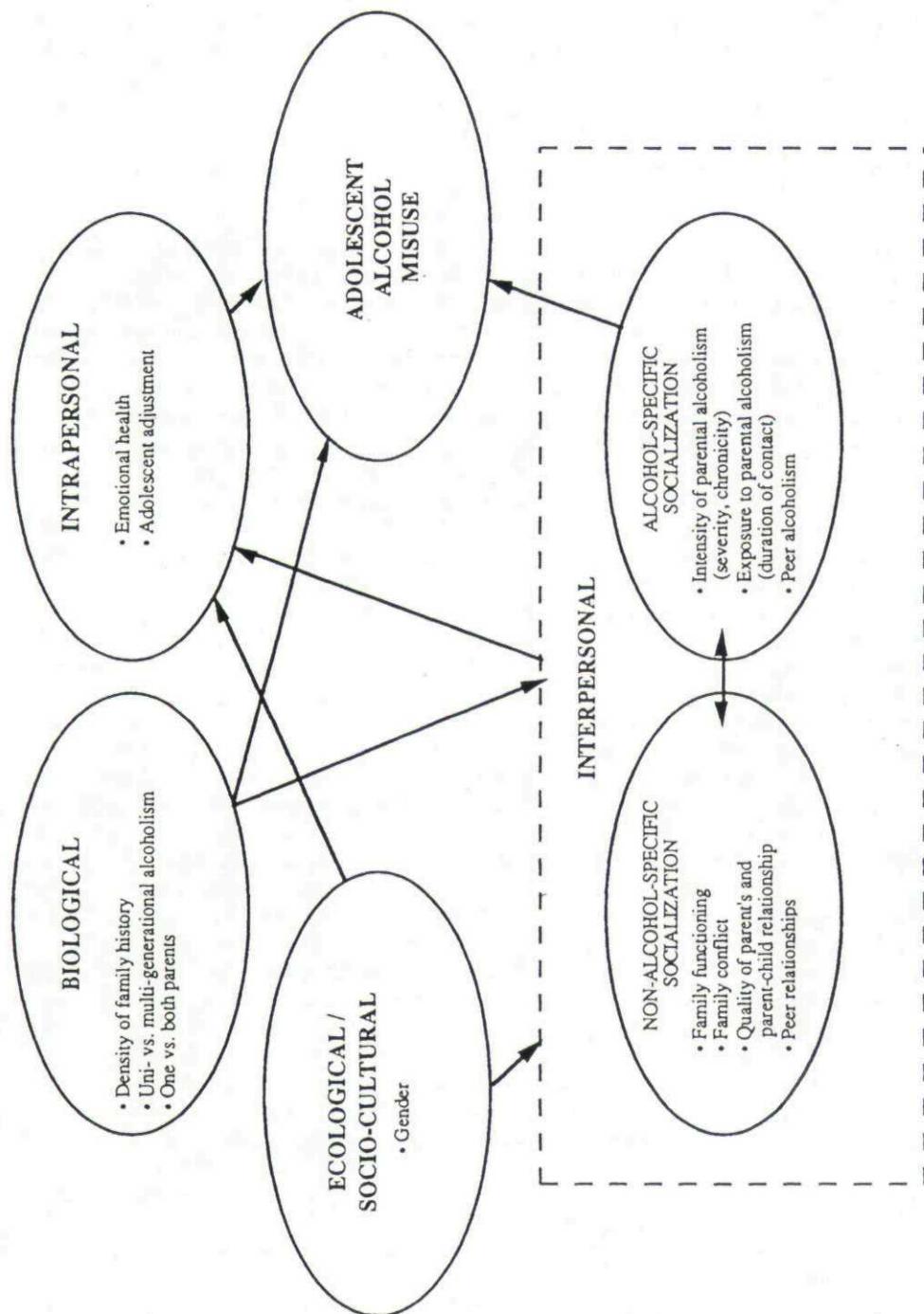


Figure 1. Conceptual model of the interrelationships of family history, intrapersonal, and interpersonal factors with alcohol misuse. Interpersonal factors are comprised of alcohol-specific and non-alcohol-specific socialization.

Table 1. Demographic characteristics of participants. Means and standard deviations are shown

	Parental alcohol history		p
	Alcohol-dependent (n=20)	Social drinkers (n=20)	
(a) <i>Subjects</i>			
Sex	10M, 10F	10M, 10F	NS
Age	24.90 (3.45)	24.70 (4.24)	NS
Years education	13.85 (2.08)	14.75 (1.77)	NS
Number marriages	0.65 (0.59)	0.5 (0.61)	NS
Income category	7.50 (2.24)	7.20 (3.33)	NS
	Alcohol-dependent (n=19)	Social drinkers (n=20)	
(b) <i>Parents</i>			
Sex	13M, 6F	13M, 7F	NS
Age	53.70 (7.16)	54.40 (8.58)	NS
Years education	14.60 (2.60)	15.90 (1.60)	NS
Number marriages	1.42 (0.90)	1.35 (0.67)	NS
Number children	3.11 (1.10)	2.75 (1.25)	NS
Income category	8.80 (2.70)	8.60 (4.20)	NS

Participants

Table 1 describes the participants and their parents. All families were Caucasian except one. Young-adult subjects were 20 men and 20 women, ranging in age from 18–30 (mean=24.2 years). Most completed high school and were currently employed with incomes in the \$10,000–14,999 (code 7) or \$15,000–19,999 (code 8) range. There were no significant between-group differences on these demographic variables.

The parents of the groups were similar in demographic characteristics (Table 1). Parents were in their mid-fifties, and most had more than one marriage or cohabiting relationship of over one year's duration. Parents with alcohol dependence tended to have less education, but this was due to only one individual in the group who did not graduate from high school. The alcohol-dependent parent data come from 19 individuals; one could not be interviewed personally, but data from a spouse informant were used where available. The drinking histories of the alcohol-dependent parents were quite varied. They had a first drink at about age 14 (13.8 ± 4.07) with an average of about six drinks on

a drinking day (5.9, averaged over all drinking years), and have experienced about seven (6.95 ± 1.8) adverse drinking consequences (from the diagnostic interview described below). Fifteen of the 20 had attended Alcoholics Anonymous, 10 been hospitalized for a detoxification, and three had attended a clinic for alcoholism. By our lifetime drinking interview, 15 qualified as heavy drinkers (see below). The non-dependent parents, in contrast, had a first drink around age 17 (± 5.9), less than one symptom of dependence, and 1.7 (± 1.14) drinks on a drinking day.

Measures

The Diagnostic Interview Schedule (Version III Revised) was administered in full to parents; the alcohol section was administered to the young adults. The DIS was designed to be administered by trained interviewers without clinical expertise (Robins *et al.*, 1981) and has been used extensively to determine psychiatric diagnoses (based on DSM-III-R; APA, 1987) in community and clinical populations. The measures analyzed in this study were severity of alcohol dependence (1, none; 2,

abuse; 3, mild dependence; 4, moderate dependence; 5, severe dependence), number of abuse or dependence criteria met (0-9), and presence of any drug abuse or dependence (collapsing severity codes 2-5 to form a dichotomous variable). Participants also provided alcohol use information for first-degree relatives during the interview. Relatives were classified for probable alcoholism by collecting a family pedigree and using the alcohol questions from the Family Informant Schedule and Criteria (FISC, Mannuzza *et al.*, 1985). This interview confirmed that the non-interviewed spouses of control group parents were not problem drinkers.

A *lifetime drinking patterns history* was collected using an instrument based upon the drinking history of Skinner & Sheu (1982). This instrument was developed to define patterns of alcohol consumption during different periods throughout the lifespan. Drinking quantity, frequency, withdrawal symptoms, and so forth were recorded for each period. In this way, multiple cycles of abstinence, light, moderate, or heavy drinking were recorded, along with the subjects' ages and duration of each period. From this information, we determined chronicity of the parent's heavy drinking, measured as years during which the parent averaged at least 35 drinks/week (men) or 28 drinks/week (women). The same criteria were applied to the young adults. Other measures reported from this instrument were age at onset of regular drinking (at least once/month) and average drinks on a drinking day during periods of regular drinking. For analysis purposes, young people who had not become regular drinkers (and hence had no regular pattern, $n=8/40$), were coded as having an average of one drink/episode; they were coded as becoming regular drinkers at their current age plus 1 year.

Early life situation (age 6-12) was assessed using the respondent portions of the *Home Environment Interview* (Robins *et al.*, 1985); e.g. deleting questions referring to siblings. A similar instrument has been used with children of alcoholic parents (Reich *et al.*, 1988). The original adult retrospective version was used in this study. Exposure to parental alcoholism was derived, along with family functioning (non-alcohol-specific socialization) measures of spousal conflict, abusive punishment, and the quality of parent and parent-child relationships. The indices used here were sums, for both mother and father separately, of positive responses to yes/no questions. A parental total was the sum of both. The index for *Exposure* to parental alcoholism included any positive responses to the questions on behavior

while drinking: whether a parent ever (1) passed out; (2) was unable to wake in the morning; (3) became verbally abusive; (4) had legal trouble; (5) was unable to work; (6) was believed by others to drink too much; (7) was an embarrassment for the family; or (8) the subject actively avoided the parent if drinking.

Abusive punishment was counted positive when parents punished by: (1) using a belt or stick to hit; (2) locking one in a room; or (3) throwing one out of the house for over an hour; or if the subject (4) feared serious harm during parental punishment; or (5) was punished in front of non-family members. *Positive relationships* were indexed as totals of 13 possible items, six asking whether parents often spent time with the subject working around the house, playing in outings, asking about activities, and celebrating holidays or going visiting, and other items on attending school functions, showing affection, and being easy to talk to. A point was added to the total if the subjects gave negative responses to three items: parents frequently criticizing the child, saying the child was not loved, or that he or she shouldn't have been born.

The *Symptom Checklist-90-R* (SCL-90-R; Derogatis, 1977) was used to assess current psychiatric problems and symptoms for both adults and adolescents. This instrument is based on the Hopkins Psychiatric Rating Scale and produces scores on nine subscales: somatization, obsessive-compulsive, interpersonal sensitivity, depression, anxiety, hostility, phobic anxiety, paranoid ideation, psychoticism, and three global indices. The positive symptom total was used as a global index. The SCL-90-R has been tested and validated using samples of adult psychiatric outpatients, normal adults, and adolescent outpatients (Derogatis, 1977).

Statistical analysis

Both between- and within-group comparisons were conducted. Alcohol misuse variables were compared between parental diagnostic groups by Student's *t*-tests or chi-square tests (likelihood ratio chi-square). Spearman's correlations were used for associations among variables. Intercorrelations among these misuse measures were calculated to determine which to include in further analyses. In order to suggest potential areas of gender difference, some of these analyses were conducted separately for men and women, although small samples limit conclusions. Psychological adjustment measures

showing a univariate relationship with alcohol misuse were then correlated with family functioning measures. The best several univariate predictors of alcohol misuse were used in stepwise linear or logistic regressions (for dependent vs. nondependent) to model alcohol misuse jointly (6 predictors, $n=40$, significance levels to enter and stay=0.05). Within the group with an alcohol-dependent parent, alcohol misuse was tested for univariate relationships with measures of alcohol-specific socialization. The best univariate measure was then included in another three stepwise regressions with the best non-alcohol-specific socialization measure from the full group analysis (3 predictors, $n=20$). To assess model stability, regressions were run using both backward and stepwise selection procedures.

Since six of the subjects had alcoholic mothers (Table 1), exposure to alcohol in utero might have produced some of the differences between groups and within the group with alcoholic parents. Of the six mothers, five reported drinking during the time they would have been carrying the child who was the study subject. Four reported drinking some amount daily during that time period. To ensure that the family-environment effects reported here were not biased by possible fetal alcohol effects, we reanalysed the data excluding these five mothers and their children. In particular, we reran comparisons of drinking behavior between the group with and without an alcohol-dependent parent, and reran the correlations between drinking behavior, psychological adjustment, and the best family environment measure. The main findings were essentially unchanged after excluding these five subjects; hence all subjects were included in the final results reported here.

Results

Effects of parental alcohol-dependence on alcohol misuse

Family history effects. Table 2 shows the differences between the two groups of young adults on drinking history and problems. The differences were in degree; indications of alcohol misuse were present in both groups. On average the young adults had a first drink about age 13.6 and began regular drinking around age 17. During high school they drank about 3.6 drinks about twice a month. Almost half of these young adults already have shown at least mild alcohol dependence (DSM-III-R). Those with an alcohol-dependent parent drank more frequently in high school, and more were classified as heavy

drinkers. (In this group five men and four women were ever heavy drinkers.) They had more symptoms of alcohol dependence (3.4 ± 2.7 vs. 1.9 ± 1.9 ; $p=0.039$) and were much more likely to abuse other drugs, primarily marijuana (Table 2). The sample for diagnoses is 19 because one subject did not complete the DIS assessment.

The two groups did not differ on any of the SCL-90-R subscales. They did vary in the reported amount of conflict between parents [$t(38)=2.876$, $p=0.007$], although they were equivalent on the indices of average positive relationship with parents and physically-abusive punishment. The group with parents who were social drinkers averaged about 1 conflict item (range 0-3) compared to 2.05 for the group with an alcohol-dependent parent (range 1-5); they averaged about 1 abuse item (range 0-6) compared to 1.45 for the group with an alcohol-dependent parent (range 0-8); both groups averaged about 16 positive parental relationship items (total of both parents).

For further analyses, we focused on three of the drinking measures: the age at which subjects began regular drinking (once/month), the average quantity of drinks in a drinking day, and a DSM-III-R diagnosis of alcohol dependence (collapsing mild, moderate, and severe). These measures correlate highly with the others in Table 2 but are somewhat independent from each other. For example, age of regular use has negative Spearman correlations of over -0.7 with high school average and frequency and of -0.59 with lifetime average quantity (all $p<0.0001$). Those who have a dependence diagnosis ($n=18$) began regular drinking about 4 years earlier (15.05 vs. 18.8, $p=0.0001$) and averaged about three more drinks per bout (5.7 vs. 2.8; $p=0.0047$).

Alcohol-specific socialization effects. As described in the conceptual model (Fig. 1), alcohol misuse was expected to vary not only with the presence of a parental diagnosis, but with the intensity of alcoholic behavior in the child's socialization environment. Alcohol-specific socialization was measured by severity (the number of positive DIS abuse and dependence symptoms) and chronicity (the years of heavy drinking by the parent) of parental dependence, and exposure to negative consequences of parental drinking (from the child's Home Environment Interview responses). The Spearman correlations of these variables with the subject's misuse measures are presented in Table 3. The correlations were weaker than expected, except for the exposure measure. Those who were exposed to more conse-

Table 2. Drinking patterns of young adults with parents who were social drinkers or alcohol-dependent. Means (\pm SD) or percentages (frequencies) are shown

	Parental alcohol history		<i>p</i>
	Alcohol dependent	Social drinker	
Age at first drink	13.05 \pm 3.58	14.05 \pm 2.86	NS
Age at regular drinking High School	16.80 \pm 3.98	17.45 \pm 2.19	NS
Drinks/drinking day	4.05 \pm 3.61	2.45 \pm 2.74	NS
Drinks once a week	55.0% (11/20)	20.0% (4/20)	0.020
Lifetime pattern			
Drinks/drinking day	4.78 \pm 3.70	3.37 \pm 2.60	NS
Heavy drinking	40.0% (8/20)	05.0% (1/20)	0.005
Drug abuse or dependence	52.6% (10/19)	15.0% (3/20)	0.011
Alcohol dependence diagnosis			
Social drinker	42.1% (8/19)	65.0% (13/20)	NS
Mild dependence	15.8% (3/19)	10.0% (2/20)	
Moderate dependence	21.1% (4/19)	20.0% (4/20)	
Severe dependence	21.1% (4/19)	05.0% (1/20)	

Table 3. Spearman correlations of alcohol misuse measures with alcohol-specific socialization measures

	Parental alcohol history		Exposure index
	Number dependence symptoms	Years heavy drinking	
<i>Offspring alcohol use</i>			
Age regular drinking	0.189 <i>p</i> =0.440	0.093 <i>p</i> =0.700	-0.290 <i>p</i> =0.210
Average quantity	-0.235 <i>p</i> =0.348	0.025 <i>p</i> =0.920	0.416 <i>p</i> =0.076
Dependence severity	0.109 <i>p</i> =0.657	0.342 <i>p</i> =0.140	0.554 <i>p</i> =0.011

quences of a parent's drinking were more likely to become dependent and tended to drink higher quantities. The subjects with a history of alcohol dependence themselves reported 5.5 (\pm 4.5) exposure items compared to 1.4 (\pm 1.9) for those with no history of dependence (*p*=0.020). Although not significantly different in this small sample, their parents had higher raw values for dependence symptoms (7.4 vs. 6.4) and years of heavy drinking (10.9 vs. 5.9).

Effects of family functioning on alcohol misuse

Univariate relationships. In the entire sample, we determined whether the family socialization measures, such as quality of relationship with parents, correlated with psychological adjustment and whether adjustment correlated with alcohol misuse. Our conceptual model proposed that non-alcohol-specific family dysfunction (e.g. spousal conflict) could affect alcohol misuse by producing general conduct problems along with poor psychological

Table 4. Spearman correlations of alcohol misuse measures with SCL-90 subscales (n=40)

SCL-90 subscale	Age regular drinking	Misuse measure Average quantity	Dependence severity
Somatization	-0.383*	0.185	0.184
Obsessive-compulsive	-0.240	0.094	0.109
Interpersonal sensitivity	-0.260	0.346*	0.239
Depression	-0.463**	0.235	0.318*
Anxiety	-0.325*	0.146	0.247
Hostility	-0.361*	0.385*	0.285*
Phobic anxiety	-0.124	0.172	0.109
Paranoid ideation	-0.198	0.207	0.106
Psychoticism	-0.589**	0.359*	0.571**
Total	-0.459**	0.296†	0.376*

**Nominal $p < 0.01$; * nominal $p < 0.05$; †nominal $p < 0.10$.

adjustment. Those in turn could indirectly allow more opportunity to misuse alcohol or more benefit from alcohol misuse as a youth or young adult. The socialization variables intercorrelate to varying degrees; we reduced redundancy by concentrating on independent measures. Positive relationships with father and mother were fairly independent ($r_s = -0.53$, $p = 0.0004$), while both mother's and father's abusive behavior correlated highly with each other (0.611). Abuse measures did not correlate with positive relationships. Spousal conflict correlated moderately with abuse measures (0.30-0.45) but not with positive relationship measures. In further analyses we included the indices of spousal conflict, parental abuse, and positive relationship with mother and father.

The univariate correlations of psychological adjustment measures with age of regular drinking, average quantity, and alcohol dependence are shown in Table 4. As can be seen, moderate correlations occurred between alcohol misuse measures and the SCL-90 total and the subscales of depression, hostility, and psychoticism. Since correlations were significant with the total score, we examined subscale correlations with age of regular use and severity of dependence. The correlations were about 0.40 or higher in several cases. Subjects who began drinking regularly at a younger age now had higher total symptoms, particularly of depression and psychoticism. Psychoticism was also higher for the subjects with more severe alcohol dependence.

Next, we examined the effects of family functioning on the psychological adjustment measures that best correlated with alcohol misuse (depression, hostility, psychoticism, and the total). However,

correlations of current psychological adjustment with rearing environment measures (from ages 6-12) were weak in these young adults. Of these 16 correlations, only one was significant beyond the 0.0031 level (Bonferroni correction), that between abusive punishment and hostility ($r_s = 0.457$), $p = 0.003$). The only other correlation exceeding 0.40 was psychoticism with the index of positive relationship with mother ($r_s = -0.437$, nominal $p = 0.0048$).

Prediction of alcohol misuse. Because the correlations of family functioning in the past and current psychological adjustment were not strong enough to suggest that psychological adjustment could be a mediator of rearing effects on alcohol misuse, we analyzed its effects simultaneously, rather than hierarchically. To determine the best predictors of alcohol misuse, we conducted exploratory stepwise multivariate regressions on age of regular drinking, average quantity, and dependence (a logistic regression). We included the four socialization measures above (spousal conflict, abusive punishment, and positive relationships with mother and father), the SCL-90 total score, and group membership (alcohol-dependent parent vs. not), comprising six predictors ($n = 40$). Only one predictor remained in each equation. For two of the misuse measures, abusive punishment had an important independent effect, increasing average quantity and the likelihood of dependence. Higher psychological symptomatology predicted a lower age of regular drinking, as was seen above. Other variables did not add enough prediction to be important independently (at the 0.05 level).

As described earlier, alcohol-specific socialization correlated with dependence severity in the group with an alcohol-dependent parent. Exposure to alcoholic behavior was the most promising variable ($r_s=0.554$, Table 3). We therefore modelled alcohol misuse in the group with an alcoholic parent using stepwise regressions that included only two predictors from the whole sample analysis (SCL-90 total and abusive punishment) and the exposure measure (3 predictors, $n=20$). Competing to enter the equation were current psychological symptoms, an alcohol-nonspecific socialization measures, and an alcohol-specific socialization variable. Again only one predictor met the 0.05 significance level in each regression. Abusive punishment affected age of regular drinking and average quantity, and exposure was important in dependence. Some added predictive power for dependence was gained by including abuse also, but the increase was not significant ($p=0.118$). Total psychological symptoms were not independently important for any of the alcohol misuse measures. Thus, exposure to the consequences of parental alcoholism was slightly more important than abusive punishment when treating dependence as a dichotomous variable (e.g. collapsing mild, moderate and severe dependence). The two measures do not substitute for one another even though both are highly related to spousal conflict; their correlation was not significant ($r_s=0.257$). However, abuse correlated 0.581 ($p=0.007$) with the spousal conflict index and spousal conflict in turn correlated 0.602 ($p=0.005$) with the exposure index.

Table 5 presents the abuse and symptom correlations with alcohol misuse for the subgroups. Psychological symptoms appear more relevant for the group with parents who are social drinkers. For

example, the correlation of SCL-90 total with severity of dependence (as shown before in Table 4 for the whole group) was significant in this subgroup but not in the group with an alcohol-dependent parent. Abusive punishment was important for each of the three measures. The most telling question of these items was, "Were you afraid that your parent would seriously harm you when she/he punished you?" In the group with social-drinking parents, 3/7 (42.86%) alcohol-dependent subjects answered positively, as did only 1/13 (7.69%) of those who do not have alcohol dependence. In the group with an alcohol-dependent parent, six of the 11 dependent subjects (54.5%) said yes to this question, compared to 1/8 (12.5%) nondependent. Dependence severity was related to both abusive punishment ($r_s=0.578$, Table 5) and exposure ($r_s=0.554$, Table 3) in the group with an alcohol-dependent parent.

Differences between men and women

The effect of family history on drinking patterns became evident at a younger age for men than women. That is, men with an alcohol-dependent parent became regular drinkers at younger ages than did men with social drinker parents (mean age=15.1 vs. 18.1, $p=0.030$) and consumed more drinks per drinking day in high school (mean quantity=5.7 vs. 2.2, $p=0.037$). For women these effects were not significant. In fact, the mean number of dependence symptoms was significantly affected by family history for men (4.89 vs. 1.7; $p=0.0038$), but not for women (2.4 and 2.2). The relationships among psychological adjustment, abusive punishment, and drinking measures were generally equivalent for men and women. The SCL-90 total correlated negatively with age of regular

Table 5. Spearman correlations of psychological symptoms and abusive punishment with alcohol misuse measures

	Age regular drinking	Misuse measure Average quantity	Dependence severity
<i>All subjects</i>			
SCL-90 total	-0.459**	0.296†	0.376*
Abusive punishment	-0.333*	0.270†	0.355*
<i>With social drinking parents</i>			
SCL-90 total	-0.565**	0.301	0.489*
Abusive punishment	0.147	0.220	0.090
<i>With alcohol-dependent parents</i>			
SCL-90 total	-0.446*	0.234	0.304
Abusive punishment	-0.658**	0.339	0.578**

**Nominal $p<0.01$; *nominal $p<0.05$; †nominal $p<0.10$.

drinking in both sexes (-0.540 M, -0.441 F), positively with average quantity (0.229 M, 0.330 F), and positively with dependence severity (0.414 M, 0.361 F). An exception was that in the group with an alcohol-dependent parent, correlations with average quantity are nonexistent for men (with SCL-90 total, -0.018 , with abusive punishment, 0.192) but moderate for women (with SCL-90, 0.351 , with abusive punishment, 0.413). Virtually all of these young men were heavy drinkers and only three were free of dependence symptoms. Dependence severity, however, correlated with abusive punishment for both men and women in this group.

Discussion

Family history did affect alcohol misuse measures. While a high level of alcohol problems occurred in both groups, those with an alcohol-dependent parent were more likely to be heavy drinkers and showed more symptoms of alcohol dependence. Overall psychological adjustment did not differ between the groups, however. Within the group with an alcohol-dependent parent, we examined severity and chronicity of parental alcoholism, along with exposure to negative consequences of parental alcoholism. Exposure did increase the likelihood of dependence, but other correlations were not as strong as expected.

Family functioning was expected to affect alcohol misuse through promoting poor psychological adjustment, regardless of family history group. Alcohol misuse measures did correlate moderately with SCL-90 subscales. Subjects who began drinking regularly at a younger age had higher total symptoms, particularly of depression and psychoticism. Psychoticism was also higher for the subjects with more severe alcohol dependence. We feel this correlation is due to the two questions in the psychoticism scale that query loneliness. In this sample, correlations of the subscales with early family functioning were too weak, however, to support a role of psychological symptoms as mediators of the effect of family functioning on alcohol misuse.

We included family functioning measures and the SCL-90 total in regression to determine the best independent predictors of the three alcohol misuse measures. For two of the misuse measures, abusive punishment had an important independent effect, increasing average quantity and the likelihood of dependence. Higher psychological symptomatology predicted a lower age of regular drinking. Other

variables did not add enough prediction to be important independently. We similarly modelled alcohol misuse in the group with an alcohol-dependent parent using current psychological symptoms, an alcohol-nonspecific socialization measure, and an alcohol-specific socialization variable. Abusive punishment affected age of regular drinking and average quantity, and exposure was important in dependence. Total psychological symptoms were not independently important for any of the alcohol misuse measures in this subgroup. With more subjects the combination of exposure and abuse should be powerful in predicting dependence in offspring.

The important correlates of alcohol misuse measures were thus exposure, abusive punishment, and psychological symptoms, with some separation of effects in the two subgroups. Psychological symptoms had a stronger relationship with misuse in subjects with social-drinking parents, while abuse was more associated in the group with an alcohol-dependent parent. Results from this study supported all of the direct arrows presented in the conceptual model. A biological vulnerability from an alcohol-dependent parent was not sufficient or necessary for one to develop alcohol dependence as a young adult, although there was an increased risk. Bear in mind, however, that one can not identify people who are truly at risk genetically, since there are no reliable biological markers of vulnerability. The alcohol-specific socialization measure of exposure did show some independent predictive effect as did the intrapersonal measure of psychological symptoms. Those young adults with greater exposure to parental alcoholism were more likely to develop alcohol dependence symptoms. The effect of family functioning is not all mediated by psychological symptoms, as conceived in the original model, but is independently important. The abuse variable had independent predictive value after accounting for psychological symptoms. Variations in family functioning did not fully account for the increased risk in the high risk families, either. Overall, similar familial factors appeared to be important determinants of alcohol misuse for men and women; however, we found suggestive evidence that young men's drinking patterns varied by family history group more than did women's.

Many published reports have compared children of alcoholic parents to controls on various psychological or social traits (reviewed in El-Guebbly & Offord, 1977; Windle & Searles, 1990; Woodside, 1988). Although not discussed in detail here, there

were no differences between the two study groups in symptoms of psychopathology, income, education, or marital status; the differences were restricted to drinking behavior. These findings disagree with other recent studies. A positive family history was associated with more symptoms of anxiety and depression in several samples, including adults in alcoholism treatment (Glenn & Parsons, 1989), daughters of inpatient alcohol-dependent persons (Benson & Heller, 1988), and women surveyed in the National Drinking Practices Survey (Parker & Harford, 1988). A positive family history was also associated with lower self-rated satisfaction from relationships for adults in treatment for alcoholism (Glenn & Parsons, 1989) and increased marital dissolution for both men and women surveyed in the National Drinking Practices Survey (Parker & Harford, 1988). The alcohol-dependent parents in our study may have been less seriously impaired as in other studies, since they were not all in treatment.

The predictive role of abusive punishment in particular was not expected, although positive familial relationships and lack of conflict in general were hypothesized to protect against youthful alcohol misuse. Abuse was more predictive than exposure for age of regular drinking and quantity, but not dependence. Parental abuse of the type described here was not common, ranging from 0 to 8 (but averaging about 1 positive) out of 10 possible items. Within the group with alcohol-dependent parents, it correlated 0.581 with the spousal conflict index. Spousal conflict in turn correlated 0.602 with the exposure index. However, abuse and exposure were not correlated, and the two study groups did not differ significantly in level of abuse. Given sufficient samples, the combination of exposure and abuse might emerge as strongly predictive of misuse risk. Perhaps the most important risks are unpredictability and volatility in parental behavior. In families with an alcohol-dependent parent, if the parents can maintain an environment with predictable positive relationships with children, the children may be likely to remain free of alcohol dependence. Consistency in parental role responsibilities and in family rituals and positive parent-child relationships were associated with fewer emotional and behavioral problems among children (Reich *et al.*, 1988). Such predictable positive relationships could contribute to a sense of self-esteem and security that may underlie personal resilience in general (Rutter, 1985).

Much larger, longitudinal studies will be necessary to differentiate the precise interactions among

family history, family functioning, emotional health, and alcohol misuse. This sample was quite small, and the observed effects should be generalized with caution, even to other groups of young adults. In addition, a retrospective study can be only suggestive. Psychological symptoms were assessed as a young adult but correlated to behavior in high school or younger; directionality could be the reverse of the hypothesized arrow in our conceptual model. Another methodological problem is the role of the exposure index compared to the other measures of severity and chronicity, since exposure was the only one of the three to be taken from the respondent's interview rather than the parent's. It would be expected to show higher correlations with respondent behavior.

Despite these weaknesses, results agree with previous family history research that shows some added vulnerability to alcoholism in high risk families (Knowles & Schroeder, 1989). These results also corroborate studies of the importance of environmental variables (Bennett *et al.*, 1988; Callan & Jackson, 1986; Jacob, 1988; Reich *et al.*, 1988; Werner, 1986). Future studies need to quantify the time of exposure and degree of parental dysfunction due to drinking rather than simply noting a positive or negative family history.

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