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# The Role of Family Functioning in the Association Between Childhood Sexual Victimization and Substance Use in Non-treatment Populations: Results from a Native Canadian Community and Comparisons with the General Population

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**The Role of Family Functioning in the Association  
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### **ABSTRACT**

Using path analytic techniques, this study examines the relationship between childhood sexual victimization and alcohol consumption in adult life, focusing in particular on the role of family functioning and the surrounding social support network of family and friends. Two non-treatment populations are compared, one, an Ontario Native community, and the other, the general Ontario population. The models are estimated separately for males and females. While the results for the two samples differ significantly in certain respects (including by sex), the importance of family functioning as an intervening factor is apparent for both Natives and non-Natives. The results of the path analyses for the two samples suggest that, among the Native group, sexual abuse is significantly and positively related to alcohol consumption through the family dysfunction measure for both males and females and through non-family support for females alone. In the general population sample, conversely, none of the three social support measures tested link sexual abuse to alcohol consumption. Instead, quality of parental relationships appears relatively more important among males in particular in predicting level of family dysfunction and supportive relations with family. These findings provide limited support for the hypothesized mediating influence of the informal support network in the relationship of childhood sexual victimization to substance abuse outcomes; they also point to notable differences for males and females in the dynamics of family life and substance use. The comparability of the Native and non-Native populations with respect to prevalence estimates and implications of the findings for policy are discussed.

## Introduction

Research on the various consequences of childhood sexual victimization reveals a significant association between the experience of abuse and a wide array of somatic, psychological and behavioral problems. A large number of these studies have emphasized the primacy of family experiences in influencing many of these negative outcomes. Features of early family life such as parental alcohol or drug problems (Black *et al.*, 1986; Famularo *et al.*, 1986; Famularo *et al.*, 1992; Hernandez, 1992), and quality of the parent-child relationship (Black *et al.*, 1986; Mian *et al.*, 1994) appear to figure importantly in both the risk of childhood victimization and in the development of problem drinking and other negative outcomes among adults sexually abused as children. Consistent with the findings on parental substance abuse from non-Native populations, Lujan *et al.* (1989) found that alcohol was present in a significant percentage of the abuse and neglect cases (85 and 63 percent, respectively) in their sample of Native children in a southwestern U.S. state (see also DeBruyn *et al.* (1987) for similar research on Native populations).

A related body of literature finds characteristics of the home environment during childhood to affect success in intimate relationships in adulthood; these factors include parental divorce and marital unhappiness (Booth and Edwards, 1989); parental drug or alcohol abuse (Coleman *et al.*, 1980; Windle *et al.*, 1995); the quality of relationships with parents (Birtchnell, 1993; Willetts-Bloom and Nork, 1992); and, the child's experience of sexual abuse or other forms of violence in the family (Carson *et al.*, 1991; Finkelhor *et al.*, 1989; Kessler and Magee, 1994; Mennen and Pearlmutter, 1993; Morrissette, 1994).

It is generally agreed that child abuse is a serious contemporary social problem. Until recently, however, its causes and consequences have been received little attention due to the extremely sensitive nature of the topic and especially when it involves incest. Given the evidence cited above pertaining to the salience of family life as both a precursor and an outcome of various life experiences, research is needed which attempts to integrate theory and findings about early life events, adult relationship formation, and substance use by examining explicitly the possible mediating role of family and other relationships in the development of maladaptive behaviors such as alcohol abuse. The socialization hypothesis of the intergenerational transmission of family quality argues that characteristics of the social network, and the family environment in particular, are influential in determining successful adjustment to adult roles and responsibilities. In this framework, substance abuse may be viewed as one possible outcome of maladjustment following sexual abuse. What remains to be determined more fully are the conditions in which child victimization leads to negative outcomes such as substance abuse. In seeking to clarify these

circumstances, this research considers sex differences in outcomes and also accesses the similarities and differences in the relationship of childhood victimization and alcohol use between Native and non-Native communities. The long-standing demographic differences in fertility and mortality between Natives and non-Natives are well-recognized to be due to Natives' unique historical, economic and cultural position in the larger North American society. The unique conditions encountered by Native populations, however, may also imply differences in the dynamics of family life and substance abuse; results to this effect could help to determine the most successful treatment and prevention strategies for this group.

### Background

From among the various sequelae of childhood sexual victimization identified in the literature, alcohol and other substance abuse appears to figure prominently (see, for example, Yellowlees and Kaushik, 1994; Mancini et al., 1995). High rates of childhood physical and sexual abuse have also been reported by other researchers among substance-abusing and other clinical populations (De Wilde et al., 1994; Cohen and Densen-Gerber, 1982; Goodale and Stoner, 1994; Hussey and Singer, 1993; Miller et al., 1993; Swett and Halpert, 1994; Walker et al., 1993).

Related research examines the role of supportive relations in mediating negative outcomes such as psychological distress and substance abuse among victims of sexual abuse. Overall, social support from family and friends appears to serve a protective role in mediating the influence of sexual abuse on the development of subsequent drinking behavior and may improve psychological adjustment following abuse (Romans et al., 1995). Others find that parental alcohol abuse (Yama et al., 1993) and perceived parental warmth (Wind and Silvern, 1994) may mediate the relationship of intrafamilial abuse to depression and a variety of other negative outcomes. Paradise et al. (1994) finds that poorer family integration is significantly predictive of problem behavior among sexually abused children. Oates et al. (1994) find that the major variable relating to behavioral improvement in sexually abused children is adequacy of family functioning (see also Testa et al., 1992). Yama et al. (1992) also argue that family environment may mediate somewhat the negative psychological consequences of the joint effects of parental alcoholism and sexual abuse. Concerning long-term effects, Lisak and Luster (1994) find that men sexually abused as children report significantly more negative relationships and a greater prevalence of substance abuse compared to the non-abused. A further set of studies on the antecedents of substance abuse find it linked to lack of emotional attachment or commitment to others as well as to self rejection (Textor, 1987; Walsh, 1995). Taken together, these findings pertaining to family relations and social support may be interpreted generally to mean that factors

associated with the home environment and support network may affect the adjustment of sexually abused children to adult roles and responsibilities.

Although few studies to date have made explicit comparisons by sex, the available evidence suggests important dissimilarities (see, for example, Browne and Finkelhor, 1986; De Wit *et al.*, 1995; Roesler and McKenzie, 1994; Widom *et al.*, 1995; Windle *et al.*, 1995). Observed patterns of response to sexual victimization suggest that males and females may experience sexually abusive acts in unique ways; and differences in coping strategies may imply differences in long-term adjustment. The extent to which the victim's sex may impact on these processes would thus seem to be an important issue requiring further study.

The present research examines the extent to which a number of family background characteristics impact on alcohol consumption through social support. Background characteristics pertaining to the family of origin include the experience of sexual abuse during childhood, whether the mother or father had a drinking or drug problem, and the perceived closeness of the relationship with parents while growing up. These factors are hypothesized to affect alcohol use primarily through characteristics of the current social support network, such as family functioning, and perceived supportiveness of relatives and friends. The primary focus is on the association between the experience of sexual abuse in childhood and patterns of drinking behavior in adulthood, and the role of family functioning and supportive relations in this connection. Although it is well-recognized that abuse of alcohol can have important negative effects on relationship stability and satisfaction (Wadsworth *et al.*, 1975), and may be related to specific negative life events such as separation and serious family arguments (Heikkinen *et al.*, 1995), the crucial assumption in the present context is that various features of family functioning and the social support network may predispose individuals to a given level of alcohol consumption, if not the timing of onset.

Whereas research to date has primarily employed specialized samples of prison populations, female or male alcoholics, individuals in substance abuse treatment programs, or psychiatric inpatients, the present study utilizes two non-treatment samples in order to address, more fully, the issue of external validity.

### Data and Methods

The data for the Native population are based on a simple random sample of 876 adults ages 19 and over from an Ontario Native Canadian community (Embree, 1993). The overall response rate for the survey was about 72 percent. The questionnaire contains a large number of items pertaining to substance use beliefs and practices as well as a number of questions about current relationships and characteristics of the respondent's family while growing up. Concerning characteristics associated with alcohol consumption and sexual abuse, among sexually abused

males, average monthly consumption is about 124 drinks, compared to about 100 drinks for non-abused males; the corresponding figures for females are 35 drinks per month for those reporting victimization, compared to 20 drinks for the non-abused. About 27 percent of this sample also reported being a victim of sexual abuse during childhood, 76 percent of whom were female. Seventeen percent of the whole sample reported abuse by a family member while 21 percent specified a non-family perpetrator. A subset of these cases evidently experienced victimization by both family and non-family perpetrators. Of those abused by a non-relative, 84 percent were female whereas 82 percent of victims of family abuse were female. Family dysfunction scores are also consistently higher for both males and females reporting sexual abuse compared to the non-abused group.<sup>1</sup>

Data for the general population were obtained from the 1990-91 Ontario Mental Health Supplement Survey (OHSSUP), a stratified, multi-stage area probability sample of the household population ages 15 and older (Ontario Ministry of Health, 1995). Excluded from this group are residents of Native reserves, prison inmates, foreign service personnel and residents of remote areas. The sample represents 9,128 cases ages 19 and older randomly selected from the household interview portion of the 1990 Ontario Health Survey (OHS). The final response rate for the survey was 76.5 percent. The OHSSUP contains detailed information on patterns of alcohol and other substance use. Respondents reported on a wide range of events and characteristics of their childhood and home environment while growing up as well as demographic and socioeconomic background characteristics pertaining to family life. To yield more meaningful tests of significance, sample weights were applied to the data and rescaled to equal the actual number of cases in the sample. Further adjustment for an overall study design effect (DEFF=2.2) resulted in a sample size of 6,154. Of this number, 2,012 cases were randomly selected for analysis. This subsample was generated in order to yield more similar sample sizes for the two groups under study. Sexually abused males in this sample reported an average of about 38 drinks monthly, compared to about 33 drinks for non-abused males; among females, average consumption for abused respondents is 14 drinks compared to about 11 drinks for the non-abused. Overall, only about 8 percent of this sample reported being a victim of sexual abuse during childhood, 72 percent of whom were female. Four percent of the sample identified a family abuser whereas about 6 percent specified a non-family perpetrator. Of those abused by a non-relative, 63 percent were female; females also reported 74 percent of family abuse. Family dysfunction scores are higher for abused as compared to non-abused females, whereas the same difference does not appear to hold for males.<sup>2</sup>

Some caution is due regarding the accuracy of the Native sample in view of the large proportion of missing cases on alcohol use (i.e., likely underestimating actual use) and the

high rate of non-participation among males in particular. The generalizability of this sample to other Native communities may also be limited by the diverse geographical and cultural experiences of reserve residents. For further information about the survey and sampling procedures, see Embree (1993). Given the relatively large number of cases missing on the alcohol consumption question (and slightly higher non-response rates for males in particular), similar caution is also due regarding the accuracy of the general population sample.

Multiple linear regression is employed to first assess the impact of demographic and family background characteristics on personal consumption of alcohol. A further regression analysis examines significant predictors of the key intervening variables hypothesized by the model, namely, family functioning as well as support from family and non-family. Path models are used to map out the significant direct and indirect effects of the various independent variables on alcohol consumption and to examine the specific roles of social support and family functioning as intervening variables. Path analysis is useful in suggesting causal or dynamic structures which permit examination of a system of relationships between and among variables; it does so by indicating whether the measured statistical associations are consistent with the assumptions made about interrelationships among the variables of interest.

In the Native sample, the most endogenous dependent variable refers to the number of alcoholic beverages consumed by the respondent over the preceding 30 days. A logarithmic transformation was taken of the dependent variable in order to improve the model fit. Taking the log values on the dependent variable improved the overall fit by about 5 percent (i.e., from adjusted  $R^2 = 26$  to 31 percent). Since the dependent variable (alcohol consumption) in the Native model is measured in log units, the coefficients can be approximately interpreted in percentage terms (SPSS Inc., 1985). The independent variables in the analysis of consumption include the respondent's sex, current age and marital status, family functioning, support from family and friends, drinking or drug problems by the parents or parental surrogates during childhood, the quality of relationship with parents (or surrogates) while growing up, and the experience of sexual abuse as a child. Characteristics of the respondent's home environment while growing up are tested as a block in both samples for their relative direct contribution to consumption levels. It is useful to note that, in the case of the Native data set, the measure of alcohol use refers to current consumption (previous month) whereas family functioning refers to the period of the previous two years. In the case of the OHSSUP sample, however, no such temporal sequencing can be established with certainty, since family functioning refers to current dysfunctions.

Current demographic and social support characteristics include the following: Sex is measured at the nominal level,



with females as the reference category. Age is measured in single years at the interval/ratio level. In order to match the coding scheme employed with the OHSSUP data, current marital status contains the categories 'married or living commonlaw', 'divorced, separated or widowed' and 'single and never married', and is dummy coded according to 'married or commonlaw' and 'previously married'. The family dysfunction measure is quasi-interval and consists of the weighted average of 15 items, each containing six response categories and pertaining to aspects of the respondent's family life over the previous two years. Question wording for the 15 composite items of this scale, covering such areas as communication, involvement and cohesion, is contained in the Appendix. The average inter-item reliability coefficient for this scale is .87. Family support measures emotional support from family and other relatives (co-residential or otherwise) on eight separate items, each with five categories. The final scale represents a weighted average of the six items and has a reliability coefficient of .85. Non-family support is based on the weighted average of four items, each with five levels, pertaining to emotional support from friends (co-residential or otherwise). The reliability coefficient for this measure is .93. Quality of relationships with the mother and father (or parental substitute) while growing up are scale measures based on the weighted average of six items about the perceived quality of relationship with the parent, each with five response levels. Average inter-item reliability coefficients for quality of relations with mother and father are .88 in each case. Sexual abuse is measured at the nominal level according to whether the respondent was ever abused sexually as a child. Those not experiencing abuse of this nature serve as the reference category. The sexual abuse item used in the Native study appears to provide an accurate measure of the real extent of the problem in this community. Given evidence from the data that the drinking patterns of non-abused respondents and non-respondents are similar (i.e., later onset of drinking for both of these groups compared to the known abused group), it may be reasonably inferred that non-respondents on the sexual abuse question were unlikely to have been victimized. Although it is possible to distinguish the relationship of the perpetrator to the victim in both the Native and non-Native data sets, the primary measure of abuse used in the present analyses does not differentiate; given the very small numbers reporting childhood victimization, particularly in the general population sample and especially involving a family perpetrator, combined with the major sex imbalance in reported levels, further refinements of the abuse measure proved unfeasible. Despite the theoretical and empirical importance of the relationship of the perpetrator to the victim, it may nevertheless be argued reasonably that, in any event, the occurrence of sexual abuse reflects certain general conditions and characteristics of the child's home environment, such as low parental competence or lack of proper child

supervision (see, for example, Hernandez, 1992; Mian *et al.*, 1994; Lujan *et al.*, 1989).

Preliminary analyses of the effects of abuse by non-family and family members among the Native sample in fact reveal that each measure has a significant impact on dysfunctional family behavior as an adult. In the complete sample, the impact of abuse by a family perpetrator is greater than is the impact of non-family abuse ( $\beta=.20$ ,  $\alpha \leq .001$ , versus  $\beta=.14$ ,  $\alpha \leq .01$ , respectively). Among females both effects are statistically significant, with family abuse having the larger effect ( $\beta=.22$ ,  $\alpha \leq .001$ , versus  $\beta=.13$ ,  $\alpha \leq .01$ , respectively); for males, non-family abuse appears more relevant ( $\beta=.15$ ) than family abuse ( $\beta=.09$ ) although neither effect is significant. Neither of the sexual abuse measures significantly predicted either of the two social support measures. As noted above, in the non-Native analyses, the coefficients reflecting the association between family versus non-family abuse and family dysfunction were not interpretable, as they were based on too few cases.

In the OHSSUP sample, the most endogenous dependent variable refers to the number of alcoholic beverages consumed by the respondent over the week prior to the survey. In order to compare levels of consumption for the Native and non-Native groups, the weekly total for the non-Natives was multiplied by 4.3. However, given the shorter time interval involved with the weekly measure, it is highly likely that drinking patterns over longer durations (i.e., monthly consumption) are a better indicator of usual drinking patterns. Of the various contemporaneous characteristics, no completely equivalent measures of family functioning or social support are available from the OHSSUP. The family functioning measure is based on thirteen items from an existing scale, representing a subset of the McMaster Family Assessment Device. Question wording for the 13 composite items is found in the Appendix. For further information on the reliability and validity of this measure, see Byles *et al.* (1988). Composite items for the OHSSUP family functioning scale are scored according to four ordinal-level response categories, compared to six levels employed in the Native survey. The questions on family support and non-family support, respectively, refer to how many (non-residential) relatives the respondent feels close to and how many (non-residential) close friends the respondent has. Both of these variables are measured at the interval-ratio level and are single-indicator as opposed to composite measures. Age, sex and marital status are measured as per the Native sample.

Among the family background characteristics, relationship with parents is a dichotomous variable measuring perceived closeness between parents and child while the respondent was growing up; those not enjoying close relations serve as the reference category. With the OHSSUP measure, unfortunately, no distinctions can be made between quality of the child's relationships with the mother and the father since the question

from this survey referred to parents collectively. Mother's and father's drug and/or alcohol abuse as well as sexual abuse while growing up are measured as in the Native sample.

### Results and Discussion

Zero-order correlations for all variables in the multivariate analyses are estimated for the full samples of Natives and non-Natives, and for males and females separately (Tables 1 through 4, not shown). Bivariate and partial slope coefficients are based on list-wise deletion of missing cases.

Considering first the Native sample of males and females combined, the effect of age on alcohol consumption is non-significant although the direction of the coefficient is as expected. Married or cohabiting people experience lower alcohol consumption compared to the reference group ( $r = -.17$ ,  $\alpha \leq .001$ ). A previous marriage, by contrast, increases consumption ( $r = .13$ ,  $\alpha \leq .01$ ). Sex is fairly strongly associated with alcohol use, with males having higher consumption ( $r = .33$ ,  $\alpha \leq .001$ ). As for the social support measures, support from family and non-family members are negatively associated ( $r = -.34$ ,  $\alpha \leq .001$  and  $r = -.10$ ,  $\alpha \leq .05$ , respectively), whereas family dysfunction is positively related to alcohol consumption ( $r = .38$ ,  $\alpha \leq .001$ ). Among the family background characteristics, both mother's and father's drinking or drug problems are significant ( $r = .19$ ,  $\alpha \leq .001$  and  $r = .18$ ,  $\alpha \leq .001$ , respectively), as are quality of relationship with the mother and father ( $r = -.16$ ,  $\alpha \leq .01$  and  $r = -.11$ ,  $\alpha \leq .05$ , respectively). Sexual abuse, however, is not significantly associated with drinking in the full sample, although the direction of the coefficient indicates greater consumption among those victimized as children, and nearly achieves statistical significance according to the conventional criterion of 5 percent ( $\alpha \leq .06$ ).

As for the correlates of family functioning and the social support measures among the Native sample, sexual abuse is significantly related to each of family support ( $r = -.15$ ,  $\alpha \leq .01$ ), non-family support ( $r = .14$ ,  $\alpha \leq .01$ ), and family dysfunctions ( $r = .28$ ,  $\alpha \leq .001$ ). Quality of relationship with father is associated with non-family support ( $r = .25$ ,  $\alpha \leq .001$ ) and mother and father relationship are significantly related to family dysfunctions ( $r = -.36$ ,  $\alpha \leq .001$  and  $r = -.26$ ,  $\alpha \leq .001$ , respectively) and family support ( $r = .40$ ,  $\alpha \leq .001$  and  $r = .32$ ,  $\alpha \leq .001$ , respectively). Mother's and father's drinking and/or drug problems are significantly related to family support ( $r = -.25$ ,  $\alpha \leq .001$  and  $r = -.21$ ,  $\alpha \leq .001$ , respectively) and to family dysfunctions ( $r = .31$ ,  $\alpha \leq .001$  and  $r = .24$ ,  $\alpha \leq .001$ , respectively), but not to non-family support. Also of interest is the fact that parental drinking and/or problems covary quite strongly and are positively associated ( $r = .32$ ,  $\alpha \leq .001$ ), as are quality of relations with the mother and father during childhood ( $r = .32$ ,  $\alpha \leq .001$ ). Not surprisingly, sexual abuse is also correlated with mother's and father's drug and/or alcohol

problems ( $r = .25, \alpha \leq .001$  and  $r = .26, \alpha \leq .001$ , respectively), and with less positive relations with the mother and father while growing up ( $r = -.22, \alpha \leq .001$  and  $r = -.14, \alpha \leq .01$ , respectively). Currently married or cohabiting persons also report lower levels of childhood victimization ( $r = -.19, \alpha \leq .001$ ) as do males ( $r = -.12, \alpha \leq .01$ ).

Comparing some of the more salient sex differences for Natives, sexual abuse is not significantly related to drinking for males (although the coefficient indicates the expected direction and comes close to achieving statistical significance at  $r = .17, \alpha \leq .07$ ) but it is significantly and positively associated for females ( $r = .15, \alpha \leq .05$ ). Among males, sexual abuse is also significantly related to support from family ( $r = -.23, \alpha \leq .01$ ) and family functioning ( $r = .28, \alpha \leq .01$ ); among females, the corresponding figures are  $r = -.14$  ( $\alpha \leq .05$ ) for family support and  $r = .29$  ( $\alpha \leq .001$ ); non-family support correlates significantly among females alone ( $r = .14, \alpha \leq .05$ ). Support from family is quite strongly and significantly related to consumption for males ( $r = -.49, \alpha \leq .001$ ) as is family functioning ( $r = .54, \alpha \leq .001$ ); among females the coefficient for family support is  $r = -.16$  ( $\alpha \leq .01$ ) and for family functioning,  $r = .30$  ( $\alpha \leq .001$ ).

Turning to the non-Native sample, age is negatively associated with alcohol consumption ( $r = -.16, \alpha \leq .001$ ). Marital status is also a significant predictor, with married or cohabiting consuming less alcohol ( $r = -.08, \alpha \leq .05$ ). As with the Native group, males report higher alcohol consumption than females ( $r = .29, \alpha \leq .001$ ). Support from non-family members is positively related to alcohol use ( $r = .13, \alpha \leq .001$ ), whereas family functioning and family support are not significantly associated with consumption. Considering the family background characteristics, sexual abuse is weakly but significantly associated with drinking ( $r = -.06, \alpha \leq .05$ ), although in the opposite direction predicted by the model; mother's drinking or drug problem is significant ( $r = .06, \alpha \leq .05$ ) while father's is not. Parental relationship quality is also non-significant.

Concerning the predictors of family functioning and social support among non-Natives, sexual abuse relates significantly to family support ( $r = -.07, \alpha \leq .05$ ) but not to either of family functioning or non-family support. Quality of parent-child relationship is significantly related to family functioning ( $r = -.13, \alpha \leq .001$ ) and family support ( $r = .12, \alpha \leq .001$ ), but not to non-family support. Mother's and father's drinking and/or drug problems are not significantly correlated with either non-family support or family functioning but father's substance abuse is associated with lower levels of family support ( $r = -.09, \alpha \leq .001$ ). It is also of interest to note in the non-Native sample that parental drinking and/or problems are not correlated. As expected, however, sexual abuse is associated with mother's and father's substance abuse ( $r = .09, \alpha \leq .01$  and  $r = .15, \alpha \leq .001$ , respectively), and with less close relations with parents while

growing up ( $r = -.11, \alpha \leq .001$ ). Males report sexual abuse less frequently than females ( $r = -.13, \alpha \leq .001$ ).

Comparing non-Natives by sex, sexual abuse is not significantly related to drinking for either males or females. Among males, sexual abuse is not significantly related to support from either family or non-family or to family functioning; among females, victimization is significantly correlated with family support ( $r = -.08, \alpha \leq .05$ ) and family functioning ( $r = .09, \alpha \leq .05$ ) but not with non-family support. Alcohol consumption is related to non-family support ( $r = .16, \alpha \leq .001$ ) among males whereas among females, it is not associated with either of the social support measures or family functioning; married or cohabiting males drink less on average than their non-married counterparts ( $r = -.16, \alpha \leq .01$ ) while previously married males tend to consume more ( $r = .09, \alpha \leq .05$ ). In contrast, marital status is not a significant predictor of consumption for females. Overall, the bivariate results appear to fit more with the Native than the non-Native case.

Figures 1A through 1I illustrate the basic models employed in the Native study with standardized beta coefficients ( $\beta$ ) for all paths linking the independent variables with family functioning, social support and alcohol use. Figures 2A through 2I show the corresponding models for the general population sample. Each set contains a model for the full sample and for males and females separately. Included are the multivariate parameter estimates for the hypothesized relationships between the most exogenous variables, the intervening variables, and personal alcohol use. For ease of interpretation, the non-significant direct paths between the set of family background characteristics and alcohol consumption have been omitted from the diagrams, although their effects have been taken into account in the estimation of the effects of the contemporaneous characteristics. For both data sets, the most exogenous characteristics related to family background did not demonstrate a significant direct impact on consumption, either individually or as a block. It should also be noted that the paths linking the various background variables with the three intervening variables are presented in three separate diagrams. Although the complete model includes all of these sets of paths together, this separate presentation was done, once again, for the sake of clarity. Given space limitations, only selected path models are shown.

The analysis for the entire Native sample shown in Figure 1A indicates that both family dysfunctions ( $\beta = .24, \alpha \leq .001$ ) and non-family support ( $\beta = .12, \alpha \leq .05$ ) are significantly and positively related to alcohol consumption. Evidently, greater contact with friends and acquaintances is conducive to higher alcohol consumption, most likely due, in part, to the social aspects of drinking but also due perhaps, in some cases, to a substitution of non-family contacts for satisfying family relations. The only other significant direct effects on alcohol

use are for marital status, with married respondents reporting less consumption ( $\beta = -.15$ ,  $\alpha \leq .01$ ), and for sex, with males consuming more alcohol ( $\beta = .44$ ,  $\alpha \leq .001$ ). Adjusted  $R^2$  for this model is 31 percent,  $\alpha \leq .001$ . Interestingly, while alcohol consumption generally declines over the life course (Addiction Research Foundation, 1983), this pattern does not appear to hold true for the Native population studied here where the multivariate results show no significant association between age and consumption. All of the family background characteristics are significantly associated with alcohol consumption through family functioning except for father's substance abuse. Sexual abuse is positively associated with family dysfunction ( $\beta = .21$ ,  $\alpha \leq .001$ ), as is mother's substance abuse ( $\beta = .15$ ,  $\alpha \leq .001$ ). Quality of relations with mother and father are each negatively correlated with family dysfunctions ( $\beta = -.18$ ,  $\alpha \leq .001$ , and  $\beta = -.11$ ,  $\alpha \leq .01$ , respectively). Adjusted  $R^2$  for the model is 19 percent,  $\alpha \leq .001$ .

Except for father's substance abuse, all of the family background characteristics are also related to family support (Figure 1D, not shown). Sex is also a significant predictor of the receipt of family support, with males enjoying lower levels of support ( $\beta = -.13$ ,  $\alpha \leq .001$ ). Adjusted  $R^2$  is 17 percent for this model, with  $\alpha \leq .001$ . Family support, however, is not a significant predictor of drinking behavior. Sexual abuse, father's substance abuse, and quality of relationship with the father are all associated indirectly with alcohol use through non-family support (Figure 1G). Sexual abuse is associated with higher levels of non-family support ( $\beta = .11$ ,  $\alpha \leq .01$ ), as is father's drug use ( $\beta = .13$ ,  $\alpha \leq .01$ ) and father-child relations ( $\beta = .23$ ,  $\alpha \leq .001$ ). Sex is also negatively associated with non-family support ( $\beta = -.20$ ,  $\alpha \leq .001$ ). Adjusted  $R^2$  for the model of non-family relations is 11 percent, with  $\alpha \leq .001$ . It is useful to note that none of the family background characteristics considered relate directly to alcohol use. Instead, the results for the Native sample reveal that sexual abuse, as with a number of other family characteristics, are linked to alcohol use, indirectly through family functioning and supportive relations with non-family. This may be interpreted to mean that early family experience is mostly important to drinking outcomes through its impact on protective and risk factors associated with the social network.

Considering sex differences among Natives, among males, only family functioning has a significant direct impact on consumption of alcohol ( $\beta = .31$ ,  $\alpha \leq .01$ ), whereas all of the family background characteristics except father's substance use and father-child relation are linked indirectly to consumption through family functioning (for sexual abuse,  $\beta = .15$  ( $\alpha \leq .05$ ); for mother-child relations,  $\beta = -.18$  ( $\alpha \leq .05$ ); and for mother's substance abuse,  $\beta = .22$  ( $\alpha \leq .01$ ) (Figure 1B)). Adjusted  $R^2$  for the model of males' consumption is 22 percent, with  $\alpha \leq .001$ . For the model of family functioning among males, adjusted  $R^2$  is

18 percent, with  $\alpha \leq .001$ . Neither of the family nor non-family support measures are significantly associated with alcohol consumption among males (Figures 1E and 1H, not shown). Among Native females (Figure 1C), both family dysfunction and non-family relations are directly and significantly associated with drinking ( $\beta = .26$ ,  $\alpha \leq .01$ , and  $\beta = .21$ ,  $\alpha \leq .01$ , respectively). Adjusted  $R^2$  for the model is 12 percent, with  $\alpha \leq .001$ . From among the family background characteristics, sexual abuse ( $\beta = .23$ ,  $\alpha \leq .001$ ) and mother's substance abuse ( $\beta = .12$ ,  $\alpha \leq .01$ ) are positively associated with family dysfunction, whereas quality of relations with mother ( $\beta = -.18$ ,  $\alpha \leq .001$ ) and father ( $\beta = -.13$ ,  $\alpha \leq .01$ ) are each negatively correlated (Figure 1C). Adjusted  $R^2$  for this model is 19 percent, with  $\alpha \leq .001$ . Significant predictors of non-family support among females are sexual abuse ( $\beta = .13$ ,  $\alpha \leq .01$ ), father's substance abuse ( $\beta = .11$ ,  $\alpha \leq .05$ ), and quality of father-child relations ( $\beta = .24$ ,  $\alpha \leq .001$ ) (Figure 1I). Adjusted  $R^2$  for this model is 6 percent, with  $\alpha \leq .001$ . Among females, as with males, family support is not related to drinking behavior (Figure 1F, not shown). As observed with the entire sample, none of the family background characteristics considered relate directly to alcohol use for either males or females, although sexual abuse, as with a number of other family characteristics, are linked to alcohol use, indirectly through family functioning for males and through both family functioning and supportive relations with non-family for females.

Turning to the results for non-Natives, all of the social support measures are directly and significantly associated with alcohol consumption (for family dysfunction,  $\beta = .08$ ,  $\alpha \leq .01$ ; for family support,  $\beta = .07$ ,  $\alpha \leq .05$ ; and for non-family support,  $\beta = .08$ ,  $\alpha \leq .01$ ) (Figures 2A, 2D and 2G (not shown)). Previously married respondents report significantly higher levels of consumption ( $\beta = .11$ ,  $\alpha \leq .01$ ), as do males ( $\beta = .31$ ,  $\alpha \leq .001$ ). As expected, age is also significantly and negatively related to alcohol use ( $\beta = -.19$ ,  $\alpha \leq .001$ ). Adjusted  $R^2$  for the model of consumption among non-Natives is 14 percent, with  $\alpha \leq .001$ . Among the family background characteristics, parent-child relations is linked to consumption through family dysfunctions ( $\beta = -.10$ ,  $\alpha \leq .001$ ) and through family support ( $\beta = .09$ ,  $\alpha \leq .001$ ), and father's substance abuse is associated with consumption indirectly through family support ( $\beta = -.07$ ,  $\alpha \leq .01$ ). Respondent's sex also relates to drinking through level of non-family involvement ( $\beta = .09$ ,  $\alpha \leq .001$ ). Adjusted  $R^2$  for the family functioning model is 2 percent, with  $\alpha \leq .001$ ; 1 percent, with  $\alpha \leq .01$  for the model of non-family support, and 1 percent,  $\alpha \leq .001$ , for the family support model.

The major differences by sex for non-Natives are as follows: Age alone is a significant direct predictor of drinking among females ( $\beta = -.16$ ,  $\alpha \leq .001$ ) (Figure 2C, not shown), whereas age ( $\beta = -.22$ ,  $\alpha \leq .001$ ), a previous marriage ( $\beta = .15$ ,  $\alpha \leq .001$ ), family functioning ( $\beta = .11$ ,  $\alpha \leq .01$ ), and family and non-family

support are all significantly correlated with consumption among males (Figure 2B). The model is non-significant for females but for males, adjusted  $R^2$  is 8 percent, with  $\alpha \leq .001$ . As for the determinants of family dysfunction, parent-child relationships are significantly and negatively associated for both males (Figure 2B) and females (Figure 2C) ( $\beta = -.10$ ,  $\alpha \leq .01$ ), but only among males is there a significant indirect impact on alcohol use through family dysfunction. The overall model for males, however, is non-significant. From Figure 2E, parental relations is also positively associated with family support for males ( $\beta = .13$ ,  $\alpha \leq .001$ ), but not for females (Figure 2F, not shown). Adjusted  $R^2$  for the model of family support among males is 2 percent, with  $\alpha \leq .001$ , whereas for females, the model is non-significant. None of the family background characteristics significantly relate to alcohol consumption through non-family support for either males or females (Figures 2H and 2I, not shown). Instead, quality of relations with parents while growing up appears to be a more important indicator of level of family functioning and family support, and only for males; among females, no significant indirect associations with alcohol consumption through the various family background characteristics are suggested by the data. As seen with the Native sample, none of the family background characteristics, including sexual abuse, relate directly to alcohol use for either non-Native males or females.

Many of the implicit hypotheses tested in this study involving family behavior and events and drinking behavior are based on theory and findings about non-Native populations. For this reason, it is interesting that the results obtained here appear to fit better with the Native as opposed to the non-Native experience. Among Natives, sexual abuse was significantly and indirectly associated with alcohol consumption through family functioning for both males and females, and through non-family associations for females. By contrast, no direct impacts by the various family background measures, including sexual abuse, are indicated by the results. Overall, the results pertaining to sexual abuse provide some support for the socialization model of the intergenerational transmission of family quality; in doing so, they also demonstrate the pivotal role of the family and surrounding social network in affecting substance use outcomes and reveal notable differences by sex in these processes. Such a finding helps to underscore the interrelatedness of various conditions and features of family life, some of which may be more prevalent in, but certainly not specific to, Native populations. Nevertheless, no such linkages involving sexual abuse, family functioning and alcohol consumption were suggested by the data on non-Natives.

#### Study Limitations and Conclusions

The above findings need to be interpreted in light of several methodological limitations that have been identified in



the child abuse literature. Given the retrospective nature of the data, it is not possible to evaluate prospective causal relationships between child abuse and adult alcohol consumption. There are also potential measurement problems surrounding recall of child abuse that may undermine the reliability of assessment (Widom, 1989). Other literature, nevertheless, offers strong support for the use of retrospective reports of early childhood events, downplaying the common criticisms of bias and distortion in recall (see, for example, Brewin *et al.* (1993)). Further, despite the strengths of the path analytic approach in estimating both direct and indirect effects, it must be remembered that effects are only inferred and that all causal conclusions are, therefore, tentative. Notwithstanding these limitations, a major strength of this study is that its findings are not limited to treatment populations, as has been the case most commonly in previous work. Accordingly, the generalizability of the findings may be inferred with greater confidence to non-treatment populations.

In addition to these general methodological concerns, there are a number of other limitations involving the comparability and use of measures available for the two data sets. First, no readily comparable information was given from the two surveys about abuse episodes. Therefore, it was not possible to take explicit account of possibly relevant dimensions of the problem such as intensity (frequency), severity (whether involving penetration), and duration (length of time spent in abusive relationship). Also important is the relationship of the perpetrator to the victim, whether intrafamilial or extrafamilial, and among intrafamilial victims, whether involving a biological or non-biological father or father surrogate (see Rowan *et al.*, 1994; Gregory-Bills and Rhodeback, 1995). Although further study on these questions is needed, preliminary analysis of the Native data confirms the relative importance, at least for females, of family versus non-family abuse for relationship dysfunctions.

Second, as explained above, in order to yield roughly comparable sample sizes for Natives and non-Natives, a random sub-sample of the original OHSSUP sample was generated. It is well known that Natives throughout North America have suffered heavily from social problems such as family violence and child neglect, suicide and drug and alcohol abuse (Durst, 1991; Kirmayer, 1994; Morrissette, 1994; Niezen, 1993). The observed smaller prevalence estimates in the OHSSUP sample compared to the Native sample for both childhood sexual abuse and alcohol consumption might help to account, in part, for the lack of significant findings for many of the hypothesized relationships that appear to be substantiated for the Native group. For example, in the case of the general population sample of males, of the cases remaining after listwise deletion of missing cases, only 30 males out of a total of 585 reported sexual victimization as children (5 percent), whereas 82 females of a total of 659

(about 12.5 percent) reported victimization. At the same time, while the observed prevalence of sexual abuse is substantially higher in the Native sample, the smaller initial sample size (especially in the case of males) resulted in only 38 of 116 males (33 percent) victimized and 114 of 251 females victimized (45 percent). Comparing these estimates with the overall prevalence rate for the Native sample of 27 percent, it appears that the impact of non-response has been to bias upward the level of sexual abuse. This suggests that the results for this group are selective of respondents with a history of abuse. In either case, the small number of cases involved may help to explain a lack of significant findings. To explore this possibility, future analyses would need to employ larger sample sizes than those used here. A related difficulty is that of substantial non-response on certain variables, especially alcohol consumption. Overall, about 20 percent of cases are missing on the drinking measure in the general population sample while almost 39 percent are missing from the Native sample. The impact of this non-response is difficult to gauge. However, given the likely reason for non-response (i.e., stigma associated with alcohol use and abuse), the samples employed are most likely selective of non-drinkers or moderate drinkers, which may actually afford a conservative test of the relationship between sexual abuse, social support and alcohol use.

Third, it would have been useful to assess more fully the impact of timing of onset of regular drinking on current quantity consumed. In order to examine the impact of family background events/characteristics and current family functioning and social support on alcohol consumption at all levels, it was important not to exclude from the analysis those who had never begun to drink. As a means of avoiding this exclusion while still considering the impact of onset, a measure of onset was computed which assigned the survey date age as the age of onset for those who had yet to begin drinking.<sup>3</sup> However, given various problems associated with the available measure of onset, it was necessary to exclude this variable from further analyses.

Fourth, as noted previously, the measure of previous week's alcohol consumption available from the OHSSUP data set may be a less valid indicator of regular drinking patterns than a measure such as previous month's drinking as defined in the Native data set. (For a discussion of limitations associated with seven-day consumption measures and validity of respondent claims of atypical weekly drinking, see Kreitman *et al.* (1981).) Had we used instead alcohol dependence or excessive drinking as our most endogenous variable defined according to objective categorization of psychiatric disorders such as DSM-III-R or ICD-10 classification systems, a more clearcut link between sexual abuse and consumption might have been established. This same limitation may also explain the observed lack of a direct relationship between parental substance abuse and current alcohol consumption.

Fifth, the measure of family functioning employed with the OHSSUP data referred to current as opposed to retrospective dysfunctions, as was the case with the Native survey. Accordingly, it is more difficult with the general population sample to make a case for unambiguous temporal sequencing between family functioning and alcohol consumption. Fewer composite items and greater truncation of response categories may also contribute to this measure's seemingly weaker role in the analyses of non-Natives. An additional problem with the use of this measure is the lack of distinction in both surveys between the family of orientation and family of procreation. Although the two samples consisted only of adults (i.e., ages 19 and older), some respondents (especially single or previously married ones) may consider the appropriate reference group to be the family of origin. In such cases, the plausible causal ordering between early family experiences such as child abuse and parental substance abuse and family dysfunctions would be considerably more equivocal. Further, the operational definitions of family and non-family support used with the OHSSUP (i.e., number of close relationships) may not have been as useful in capturing the concept of supportive relationships as was true with the corresponding measures in the Native survey.

Finally, it would have been useful to examine the impact of socioeconomic status of both the family of origin and family of orientation on current family functioning and availability of supportive relations, as well as on patterns of alcohol consumption. The omission of these variables was due to a lack of appropriate measures in both data sets as well as to important differences in the relevance of these indicators for Native reserve residents and non-Natives.

The primary goal of this study has been to further our understanding of the intervening mechanisms between childhood sexual abuse and current alcohol use and to determine how these mechanisms differ for Natives and non-Natives, as well as by sex. Overall, the findings from this study provide some support for the hypothesized influence of the informal support network on the relationship of childhood sexual victimization to alcohol use. The socialization model of the intergenerational transmission of family behaviors and functioning appears best-suited to the experience of the Native group studied here. This is an interesting finding insofar as many of the hypotheses tested involving family background, family functioning and personal drinking behavior are based on theory and findings about non-Native populations. Notable sex differentials also emerge, although such differences do not operate consistently for Natives and non-Natives. Overall, however, the proposed models appear to better predict the drinking behavior of males than females.

Recommendations for future research involve addressing many of the issues raised in this investigation, in particular, the limitations of the cross-sectional design and weaknesses of a number of the key measures employed. Generally speaking, greater

comparability between the two surveys of the central measures involved would have facilitated direct comparisons across samples of the magnitudes of unstandardized slope coefficients. Risk and protective factors other than family functioning and non-family support are also likely and remain to be determined in the course of further study. As well, there is a need to examine, systematically, the relative impact of familial versus extrafamilial abuse on social support and drinking outcomes. Despite the need for additional clarification on a number of issues, the implications for policy which may be derived from the findings are that the socialization model appears to be useful in understanding at least part of the complex of family problems and substance abuse among Natives. The observed significant intervening role of the family in adulthood implies the possibility for preventive and palliative programs for those at greatest risk of substance abuse. In the case of non-Natives, similar research results might also obtain, given larger sample sizes and alternative measures.

**Appendix**  
**Family Functioning Items and Scores, Native and Non-Native Samples**

Native Sample Items and Scores

1. never
  2. very rarely
  3. sometimes
  4. often
  5. very often
  6. almost always
- 
- a. I yell at a family member in my home.
  - b. I argue with someone in the house.
  - c. Family members yell at me.
  - d. Family members pick fights with me.
  - e. There is often confusion in my house.
  - f. We talk to each other a lot in my family.
  - g. Member of my family stick up for one another.
  - h. My family enjoys spending time together.
  - i. Physical fighting occurs in my household.
  - j. There is tension within the family.
  - k. As a family, we avoid each other's problems.
  - l. There are bad feelings among my family members.
  - m. I have been physically injured by a family member.
  - n. I have been hit by my spouse or other family member.
  - o. I have hit, kicked or scratched a family member.

Non-Native Sample Items and Scores

1. strongly agree
  2. agree
  3. disagree
  4. strongly disagree
- 
- a. Planning family activities is difficult because we misunderstand each other.
  - b. In time of crisis we can turn to each other for support.
  - c. We cannot talk to each other about sadness we feel.
  - d. Individuals (in the family) are accepted for what they are.
  - e. We avoid discussing our fears and concerns.
  - f. We express feelings to each other.
  - g. There are lots of bad feelings in our family.
  - h. We feel accepted for what we are.
  - i. Making decisions is a problem for our family.
  - j. We are able to make decisions about how to solve problems.
  - k. We don't get along well together.

- l. We confide in each other.
- m. Drinking is a source of tension or disagreement in our family.

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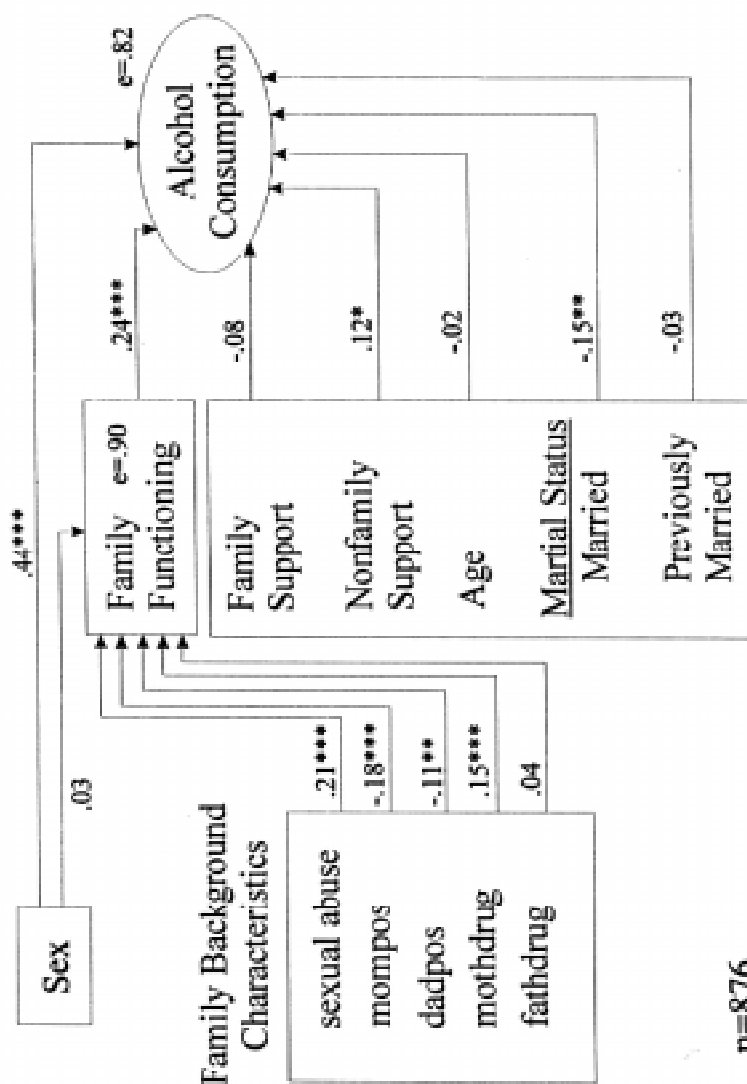
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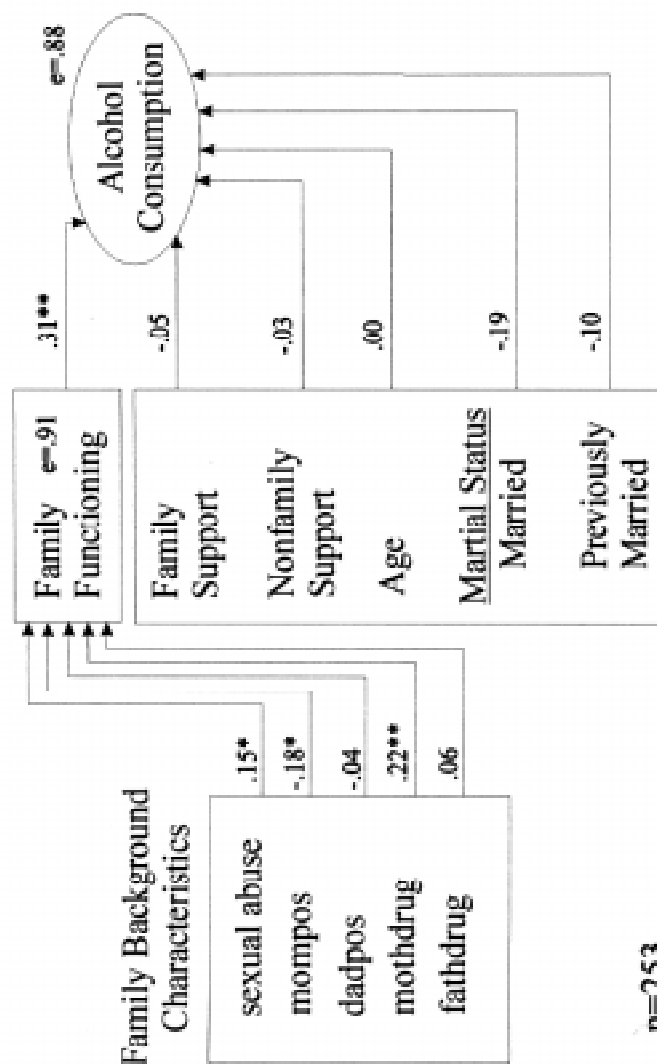
FIGURE 1A  
Family Functioning



ALCOHOL CONSUMPTION - FULL MODEL  
NATIVES

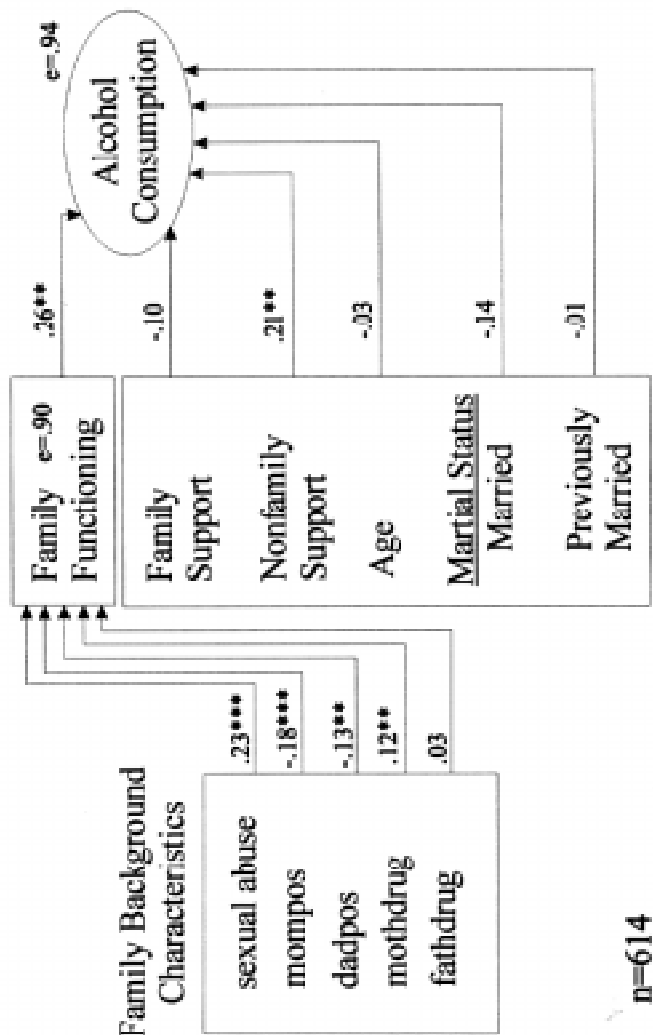
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FIGURE 1B  
Family Functioning (Males)

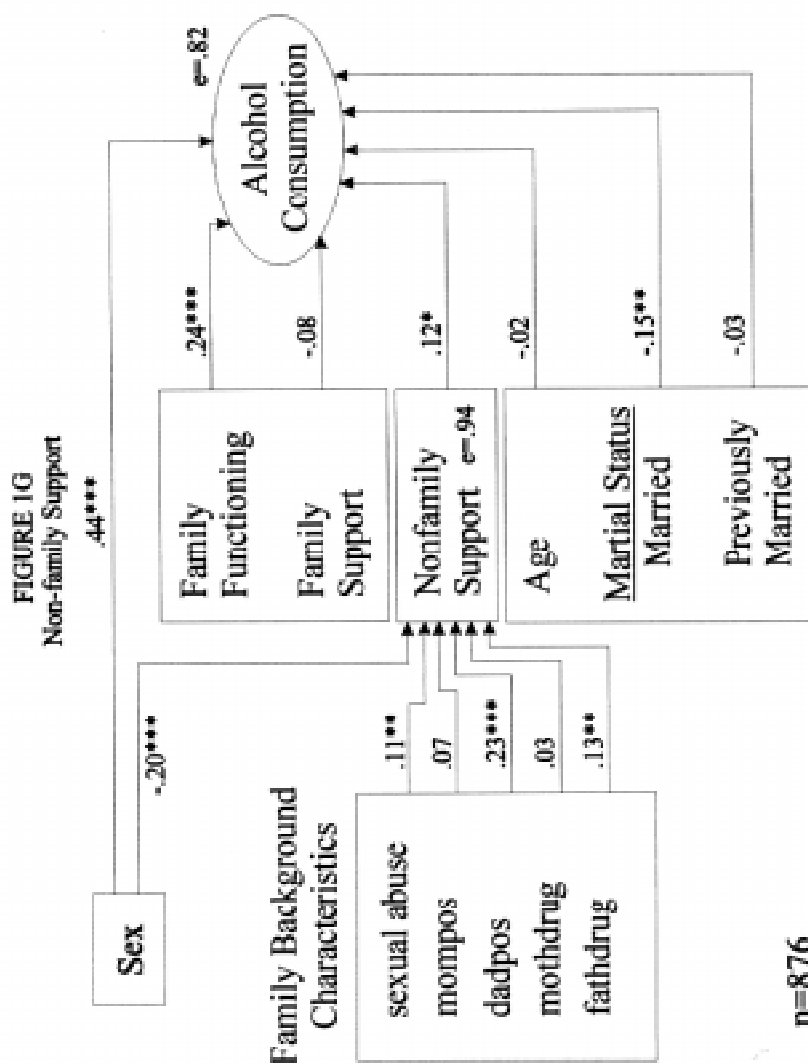


ALCOHOL CONSUMPTION  
NATIVES

FIGURE 1C  
Family Functioning (Females)

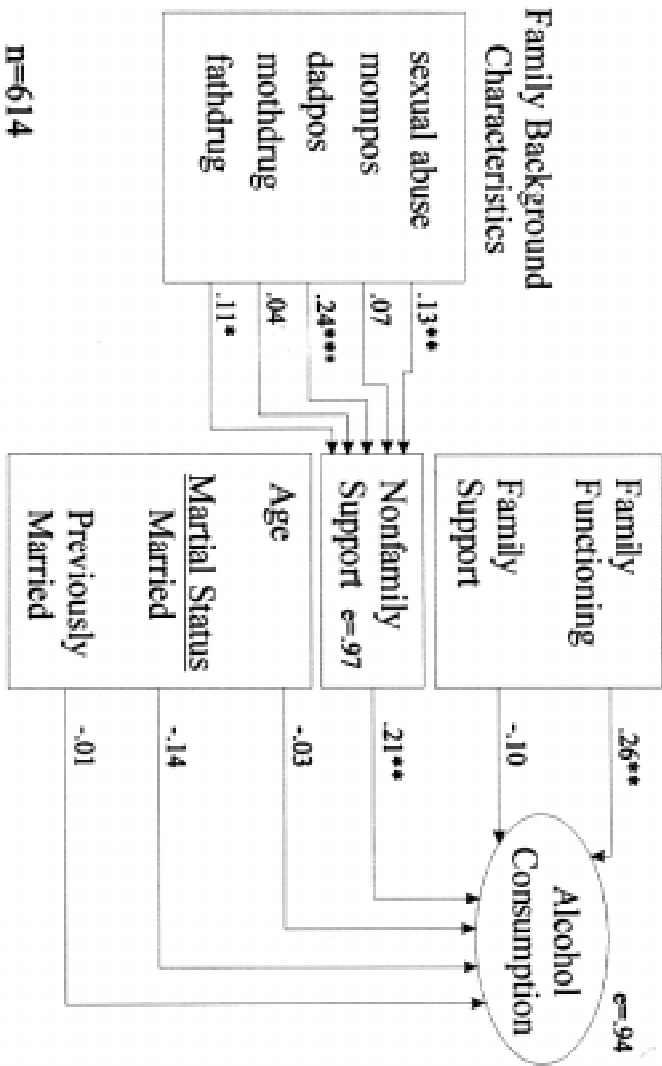


ALCOHOL CONSUMPTION  
NATIVES



**ALCOHOL CONSUMPTION - FULL MODEL NATIVES**

FIGURE 11  
Non-family Support (Females)



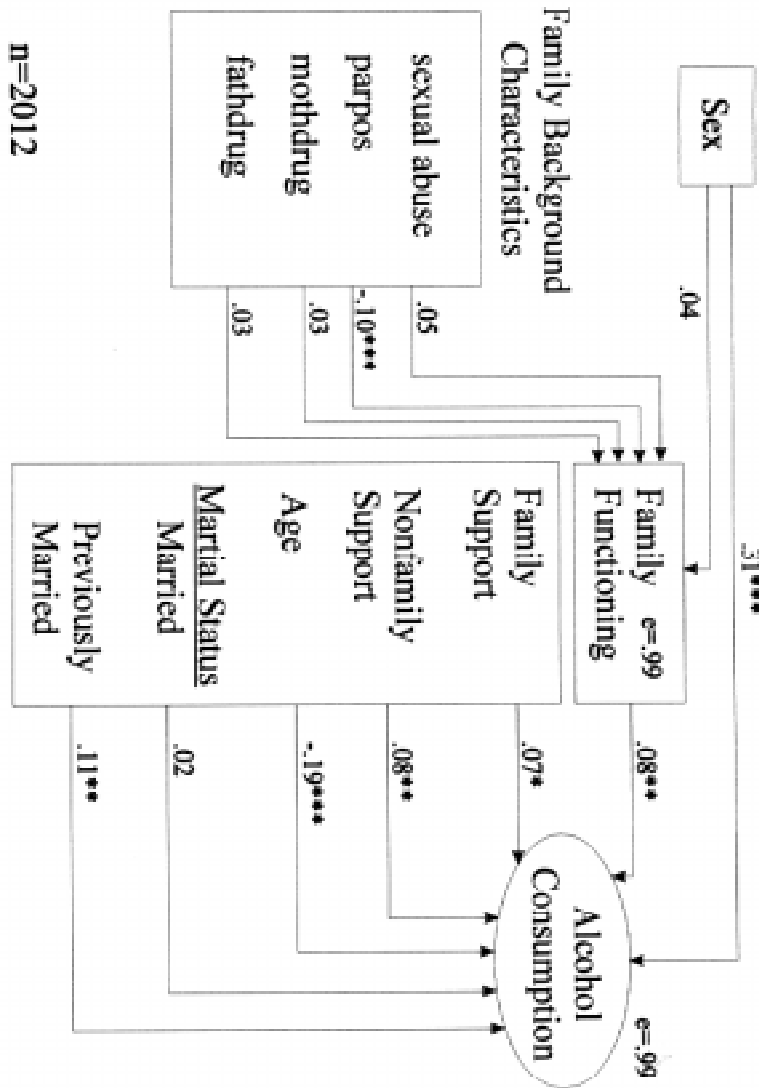
n=614

ALCOHOL CONSUMPTION  
NATIVES





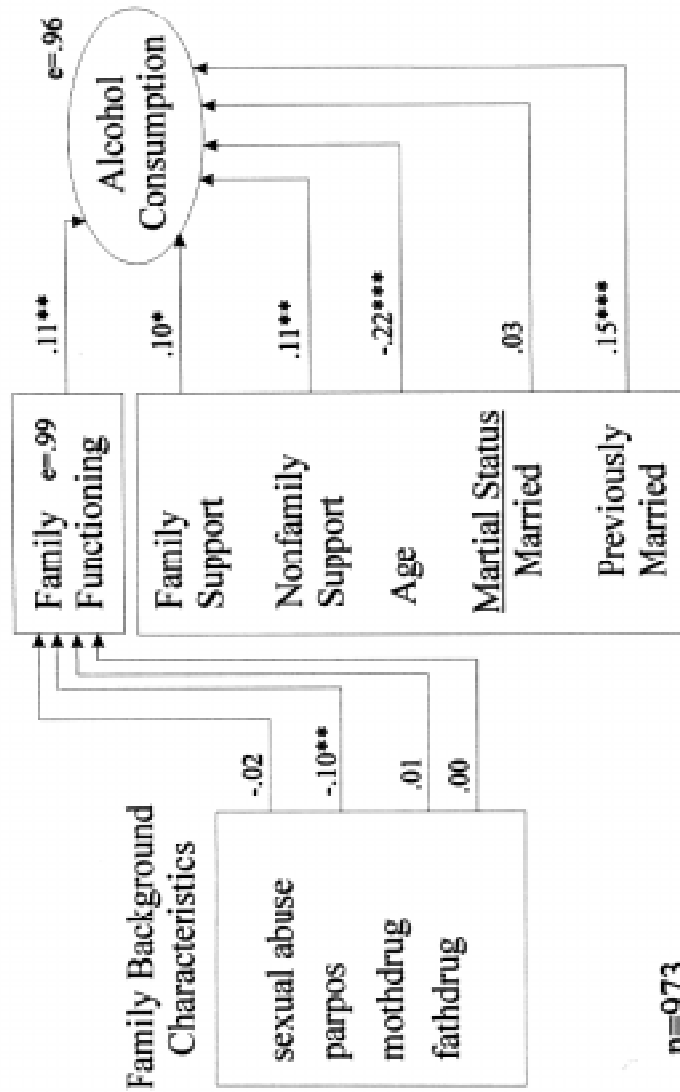
FIGURE 2A  
Family Functioning



n=2012

ALCOHOL CONSUMPTION - FULL MODEL  
NON-NATIVES

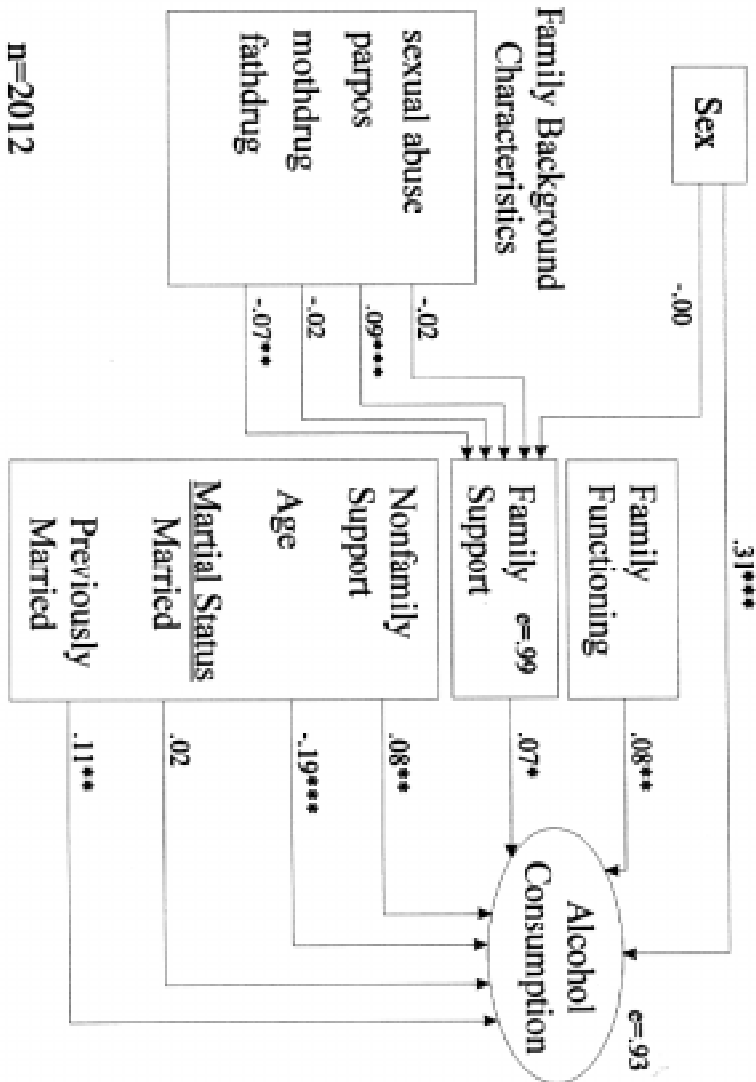
FIGURE 2B  
Family Functioning (Males)



n=973

## ALCOHOL CONSUMPTION NON-NATIVES

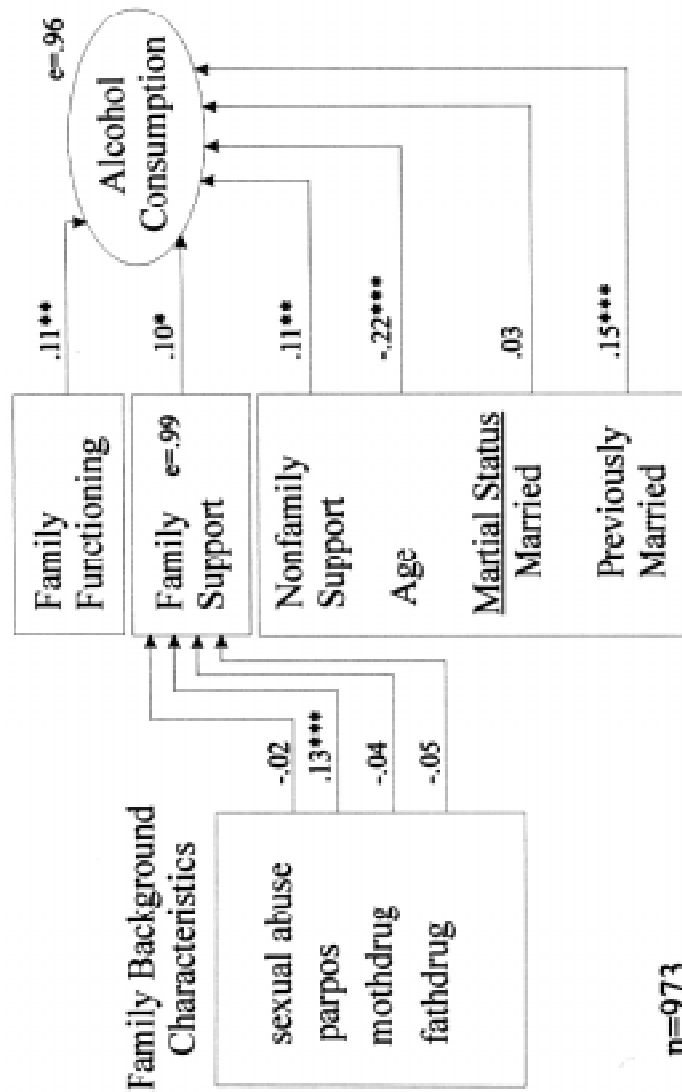
FIGURE 2D  
Family Support



n=2012

ALCOHOL CONSUMPTION - FULL MODEL  
NON-NATIVES

FIGURE 2E  
Family Support (Males)



ALCOHOL CONSUMPTION  
NON-NATIVES



### Endnotes

1. Some additional basic characteristics of this group are as follows: about 29 percent are male; about 57 percent are now married or living in a common-law union; the mean age of the sample is 41 years, with 57 percent between ages 19 and 40, 28 percent between ages 41 and 60, and about 15 percent, older than 60. Whereas thirty-nine percent of respondents failed to answer the question on alcohol consumption, a further thirteen percent reported having consumed no alcoholic beverages in the 30 days preceding the survey; 7.5 percent had never consumed alcoholic beverages. Average age of drinking onset for the sample of lifetime drinkers was 17 years; for males, the corresponding age was just under 16 and for females, just under 18 years. The average consumption over the preceding 30 days is 54 drinks for the group as a whole, 108 for males, and about 28 for females. Forty-three percent had a father (or father surrogate) with a drinking or drug problem whereas about 17 percent reported a substance abuse problem by the mother (or mother surrogate).

2. About 48 percent of this resulting subsample are male; 72 percent are currently married or living in a common-law union; the mean age of the sample is 44 years, with 57 percent between ages 19 and 40, 28 percent between ages 41 and 60 and about 15 percent, older than 60. Just over 23 percent of respondents failed to answer the question on alcohol use; a further thirteen percent reported having consumed no alcoholic beverages in the week preceding the survey whereas 5.7 percent had never consumed alcohol. The average age of onset of drinking for lifetime drinkers was about 17 for the whole sample, just under 16 for males and just over 18 for females. The average estimated consumption over the preceding 30 days was about 22 drinks for the group as a whole, 33 for males, and 11 for females. About 15 percent had a father (or father surrogate) with a substance abuse problem whereas fewer than 3 percent reported a substance abuse problem by the mother (or mother surrogate).

3. As with conventional hazard analysis, the necessary assumption with this approach is that the event of interest (onset of drinking in this case) is eventually experienced by all individuals. Hazard analysis, however, makes use of additional information in calculating the timing of occurrence according to a profile of individual characteristics before assigning timing values to censored cases on the basis of the timing for those having completed the event. In contrast, the assumption made with the measure of onset employed here that the starting date is equivalent to the survey date for all censored cases is much less satisfactory. In addition, although collinearity diagnostics failed to uncover any particular problem with either sample, the available measure introduces a greater potential for collinearity among the predictors since the subset of lifetime abstainers is a perfect linear combination of the corresponding age of onset for this group. In preliminary analyses of this variable in the Native sample, age of onset appeared to have little effect on either magnitude or statistical significance of the other parameter estimates in the model. In the full model, onset was non-significant as was true for the male subset; in the female sample, however, onset was significantly related to alcohol use in the expected direction ( $\beta = -.13, \alpha \leq .05$ ). In the sample of the general population, the results of including the onset measure were far less consistent: In the full sample of males and females combined, onset was significant ( $\beta = -.06, \alpha \leq .05$ ) but affected dramatically, the statistical significance of the other estimates; in the male subset, onset was also significant ( $\beta = -.10, \alpha \leq .05$ ) and the results for the other coefficients appeared to replicate the pattern of results in the complete sample; among females, only the onset measure, once introduced, remained statistically significant ( $\beta = -.12, \alpha \leq .01$ ).