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Alcohol and Parenting: The Effects of Maternal Heavy Drinking

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by
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Executive Summary

Research has associated heavy maternal drinking with many problems in the mother's health and the development of the fetus during pregnancy. However, little attention is paid to how drinking affects child development. The good news is that only four percent of children in the NLSCY have a mother who drinks 5 drinks of more on more than 12 occasions. Unfortunately for these children, drinking poses a serious problem. Results from the NLSCY suggest that heavy maternal drinking is negatively associated with health consequences for the mother, parenting toward her children, and behavioural and emotional problems in her children.

Families with heavy-drinking mothers are more likely to be headed by a single parent, have low socioeconomic status and have poor family functioning. Heavy-drinking mothers, themselves, are more likely to suffer from depression, have poor parenting skills, smoke, and have smoking and drinking related health problems. Young children of heavy-drinking mothers are more likely to suffer from separation anxiety while older children exhibit negative behaviour such as hyperactivity direct and indirect aggression, conduct disorder, and committed more property offenses. Moreover, these children are more likely to experiment with alcohol by the age of 11 than children with mothers who drink moderately, lightly or not at all.

Teachers identified heavy-drinking mothers as less likely to be involved in their child's school and less supportive of their child's teacher. Teachers confirmed the mother's rating of difficult behaviour in the child.

The results from the NLSCY suggest that the effect of heavy maternal drinking on the developing child is a cost which needs to be included in the litany of negative outcomes associated with this behaviour.

Sommaire

La recherche a montré un lien entre une consommation importante d'alcool chez la mère et de nombreux problèmes de santé pour la mère et problèmes de développement pour le fœtus pendant la grossesse. Cependant, on ne s'est pas beaucoup préoccupé des effets de la consommation d'alcool sur le développement de l'enfant. La bonne nouvelle, c'est que c'est seulement chez 4 % des enfants visés par l'ELNEJ que la mère consomme cinq verres ou plus d'alcool plus de 12 fois dans l'année. Malheureusement pour ces enfants, la consommation d'alcool pose un sérieux problème. Les résultats de l'ELNEJ laisse penser qu'une forte consommation d'alcool chez la mère a des conséquences négatives sur la santé de la mère, le style parental qu'elle adopte envers ses enfants, et les problèmes comportementaux et affectifs des enfants.

Les familles dont la mère consomme beaucoup d'alcool sont plus susceptibles d'être dirigées par un parent seul, d'avoir un statut socio-économique faible et d'afficher un mauvais fonctionnement familial. Les mères qui consomment beaucoup d'alcool, quant à elles, sont plus susceptibles de souffrir de dépression, d'afficher des compétences parentales médiocres, de fumer, et d'avoir des problèmes de santé liés à l'usage du tabac et à la consommation d'alcool. Les jeunes enfants de mères qui font une forte consommation d'alcool sont plus susceptibles de souffrir d'angoisse de séparation, tandis que les enfants plus âgés affichent des comportements négatifs comme l'hyperactivité, l'agression directe et indirecte, des troubles de la conduite, en plus de commettre plus d'infractions contre les biens. De surcroît, ces enfants sont plus susceptibles d'avoir consommé de l'alcool à l'âge de 11 ans que les enfants dont les mères font une consommation modérée ou légère d'alcool ou n'en consomment pas du tout.

Selon les enseignants, les mères qui font une forte consommation d'alcool sont moins susceptibles de s'intéresser à la vie scolaire de leurs enfants et font preuve de moins de soutien envers les enseignants. Les cotes attribuées par les enseignants aux enfants qui ont des comportements difficiles confirment les cotes attribuées par les mères.

Les résultats de l'ELNEJ laissent passer que l'effet de la forte consommation d'alcool de la mère sur l'enfant en développement est un coût qui doit être pris en considération dans la litanie des résultats négatifs découlant de ce comportement.

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1. Introduction: Research Questions

This study asks two questions: 1. What demographic characteristics define maternal heavy drinkers? and 2. What are the correlates of maternal drinking for the behaviour and school functioning of their offspring? The focus is on children living with their mothers, the mothers' alcohol consumption within the past year, their parenting, and their children's behaviour as rated by themselves, teachers, and the children.

2. Literature Review

The abuse of alcohol is a pervasive and pernicious problem. It is the most or second most prevalent psychiatric disorder according to general epidemiological surveys (Helzer & Pryzbeck, l988; Kessler et al., l994). Affected individuals, however, seldom receive treatment; estimates suggest that only 5 to 20% ever receive problem focused care (Emrick, l989; Moore et al., l989). This is a troubling omission given the cost and consequences of the disorder. In the United States, yearly direct cost estimates are 98.6 billion dollars (Rice, l993), while in Canada one estimate was 5.2 billion dollars (Eliany, l989). The health ramifications of alcohol related disorders are enormous, argued by some as representing the third major health expense, the single major reason for trauma emergency room visits, and the basis for a fourth to a third of all general hospital admissions (Pattison & Kaufman, l982; Gordis, l989; Johnson et al., l995; Umbricht-Schneiter et al., l99l). These statistics reflect the role of abusive drinking on cardiomyopathy, brain damage, cancer, liver disease, mental illness, and social mayhem including rapes, murders, assault, suicide, family violence and accidents. For example, heavy drinking at the time of the act is present in approximately half of all rapes, murders, and assaults (Murdoch et al., l990). In addition there are substantial costs related to absenteeism and decreased job performance. Significantly, other than children affected by prenatal exposure to alcohol, estimated to occur in from 0.5 to 3 births per l,000 (Iom, l996), the effect of abusive drinking on the development of children is seldom considered when detailing the consequences of alcohol abuse. This is likely a glaring omission as statistically it has been estimated that l in 8 children have an alcoholic parent, and there is substantial evidence of the effect of a family history of alcohol on the development of children. Children of alcoholics (COA's) have universally high rates of accidents, mental illness admissions, substance abuse, general hospital admissions with longer stays, and total higher health costs (Children of Alcoholics Foundation, l990). It is thus understandable that recent years have seen a great deal of interest in the study and treatment of children of alcoholics.

2.1 Children of Alcoholics

The literature on children of alcoholics (COA's) has been extensively reviewed (Sher, l99l; Galanter, l99l; Windle & Searles, l990). Two general foci are apparent in this literature. First, there is a focus on the characteristics of these offspring, particularly sons of male alcoholics (Pihl

et al., l990), in an attempt to delineate risk factors for the further development of alcohol and behaviour problems. The second focus is on the treatment of children of alcoholics, and there is a massive clinical literature which dates to the beginning of this century. Driven by the adult children of alcoholics movement, these individuals are often seen and see themselves as victims of parental behaviours (Stark, l987). For many, being the child of an alcoholic is viewed as representing the existence of problems *per se* (Black, l982). Various authors have suggested that these individuals are often characterized by low self-esteem, anxiety, guilt, anger and rage, impulsivity, inconsistency, humorlessness, constricted emotions, hypervigilance, stress related illnesses, a history of victimization, physical and/or sexual abuse, and substance abuse (Cermak, l988; Woititz, l984; Brown, l988; McKearn, l988). Unfortunately, as the focus of treatment is on the affected individual, comparatively little work is directed toward understanding the putatively responsible parenting behaviours. Sher & Mothersead (l99l, page 166) conclude that "although it is known that COA's are at risk for a number of negative outcomes, the various pathways to each of these outcomes are still not well understood and it is not clear what variables are most important to target."

Overwhelmingly, the bulk of the experimental literature on COA's is descriptive of the problems these individuals display and is often integrated into high risk research paradigms. The intent is not to determine which parental variables led to the characteristics of interest but rather how the characteristics of interest make the individual vulnerable to developing drug and other psychological problems. In fact, a good portion of this literature assumes a genetic model and thus parenting practices *per se* are not even considered. A particular focus in these studies are sons of male alcoholics, as, until recently, these individuals have been seen to be at a much higher risk for the development of alcohol problems than daughters or offspring of female alcoholics. Numerous reviews exist on this specific population (Pihl et al., l990; Peterson & Pihl l994; Tarter, et al., l985; Windle & Searles, l990). The literature does illustrate how sons of male alcoholics do show distinctive behavioural, cognitive, electrophysiological, biochemical and alcohol responses. Behavioural dysregulation, disciplinary problems, impulsiveness, and negative affectivity are most frequently described. These individuals often reflect histories of rebellion, conduct disorder, and antisociality which has led some to argue that antisocial tendency rather than family alcoholism is the important risk factor (Hesselbrock & Hesselbrock, l992). Personality characteristics which are consistent with this above profile are tendencies to be

"high novelty seekers" (Finn et al., l992), reflect undercontrol (Harden & Pihl, l994; Sher et al., l99l), and to be less altruistic and more irresponsible (Sher et al., l99l). Cognitively, these individuals have been shown to reflect mild to moderate impairments in what has been called executive functions encompassing abstraction, planning, and problem solving. Problems with language, attentional and memory processing, psychomotor integration, visual perceptual analysis, and learning have been noted as well (Drejer et al., l985; Knop et al., l985; Peterson et al., l992; Schaeffer et al., l984; Tarter et al., l989). There are a few studies (Harden & Pihl, l994; Tarter et al., l990) where parental pathology is controlled, which have been taken to suggest the importance of a non parenting predisposing factor. However this result may represent only a small segment of COA's and only explain the vulnerability in a genetic vulnerability-stress model.

A number of researchers (Chassin et al., l993; Pihl & Peterson, l992; Sher & Trull, l994; Tarter et al., l993) have suggested a form of vulnerability model for COA's where the individual characteristics of irritability/impulsivity interact with poor parental care to increase risk for conduct disorder and academic failure as well as subsequent drug abuse. Much evidence supports the conclusion of a problematic family environment. Economic and marital instability (West & Prinz, l987), irregular caretaking (Sher, l99l), increased violence and abuse (Kumpfer & Bays, l995) and generally little cohesion, high conflict and poor communication (Moos & Moos, l984) have been reported in families with an alcoholic parent/parents. Unfortunately, the culpable parenting practices have received less attention. Suggested candidates are inconsistent and unpredictable parenting (Windle, l996), poor parental monitoring (Dishion & Loeber, l985), low parental nurturance and warmth (Brook et al., l990), harsh discipline (Patterson, l986), and a greater tolerance for deviancy (Johnson & Pandina, l99l).

2.2 Consequences of Maternal Alcohol Consumption on Offspring

As is apparent in the preceding paragraphs, research on the impact of parental alcohol consumption on offspring development has concentrated on paternal drinking. A literature search on maternal alcohol consumption using psychology and medicine publication data banks showed that the vast majority of studies focus on at least one of the following topics: consequences of parental drinking (mothers and fathers confounded) on offspring development, psychopathology, or behaviour (Barber & Crisp, l994; Bensley, Spieker, & McMahon, l994; Brook et al., l996;

Roosa et al., l996); parental drinking and its degree of risk on offspring substance use/abuse during preadolescence and adolescence (Hops et al., l996; Quine & Stephenson, l990); fetal alcohol syndrome, and more generally, impact of maternal consumption of alcohol and other drugs during pregnancy on a child's physical, psychological, and intellectual development (Little et al., l989; Mayes, l995; O'Connor, Sigman, & Kasari, l993; Steinhausen, l995; Steinhausen, Nestler, & Huth, l982); and the consequences of maternal drinking on adult offspring (Hill et al., l988; Marcus, l986; Schuckit, l984). Very little effort has been made to isolate the impact of maternal drinking on offspring, independent of alcohol use and abuse during pregnancy. Most studies do not differentiate between prenatal, perinatal, and postnatal maternal alcohol consumption. Research addressing drinking and drinking problems in mothers has remained a relatively neglected area.

Two studies which did control for alcohol consumption during pregnancy and focused on maternal drinking were completed by Hill and colleagues. Hill & Muka (l996) tried to determine the prevalence of psychiatric disorders among children who had been selected based on their maternal family history of alcoholism, although more than half of these children also had an alcoholic father. High-risk children came from families with multigenerational alcoholism in first- and/or second-degree female relatives, while low-risk (control) children had no first- or second-degree relative with an alcohol dependence. These authors found that children under age l3 with an alcoholic mother and a non-alcoholic father were 3 to 5 times more likely to exhibit a psychopathology (affective disorder, anxiety disorder, oppositional/conduct disorder, Attention Deficit Hyperactivity Disorder), compared with age-matched controls (low-risk children). The same comparison was used between high-risk children with and without prenatal exposure to alcohol, but only one significant finding came out of the comparison: children of mothers who drank during pregnancy were more susceptible to be diagnosed with conduct disorder. The facts that reports of abstinence or alcohol consumption during pregnancy were reported several years later by the alcoholic mother, that degree of alcoholism (or of alcohol use and abuse) currently and during pregnancy were not assessed, and that paternal drinking was confounded must temper conclusions. In a second study, Hill, Muka, Steinhauer, & Locke (l995) used the same sample of subjects to look at specific amplitude decrements of an event-related potential, which is an electrical response of the brain to a brief sensory stimulus. The wave form after 300 milliseconds is referred to as the P300 component, and has been seen as a possible neuropsychological risk

marker for the development of alcoholism, as associated with particular sensory and cognitive aspects of information processing, and as under genetic control. The study found that the children from families with multigenerational alcoholism in first- and/or second-degree female relatives displayed decrements in P300 amplitude in both auditory and visual modalities, compared with controls. The visual modality paradigm discriminated risk groups best for male children, and the auditory paradigm discriminated risk groups best for female children. These findings led the authors to conclude that the P300 component of the ERP indexes a developmental delay in children of alcoholic mothers and demonstrates the transmission of alcoholism risk from mothers to children. However, alcoholism in the father was controlled only for female children's data analyses. Other evidence suggests that children of alcoholic mothers are more affected than children of alcoholic fathers, displaying more negative experience (Velleman & Orford, 1990) and a greater likelihood to develop psychopathology (Heinz, 1990). Moser and Jacob (1997) studied father alcoholic, mother alcoholic, and both parent alcoholic families and found that both parent and mother alcoholic only families presented the most impaired parent-child interactions. These mothers reflected a lower level of positive interactions and a higher level of negative interactions toward their own children.

Studies where maternal and paternal drinking, other drug use, and prenatal exposure are confounded nonetheless provide suggestions as to maternal effects and possible mediators. Heavy maternal alcohol and other drug consumption has been shown to be related to more insecurity in children at age 1 year (O'Conner et al., 1987), to teacher ratings of overactivity in school (Bell & Cohen, 1981), to less responsible child rearing (Tarter et al., 1993), to less parental agreement in parent-child interactions (Whipple et al., 1995), and to both internalizing and externalizing behavioural disposition in the children (Moss et al., 1995). The amount of alcohol consumed (Johnson & Pandina, 1991), the mother's personality attributes (Brook et al., 1996), the presence of co-morbid psychopathology including cognitive impairment (Sher et al., 1991) , and socioeconomic status (Ellis et al., 1997) are seen as possible mediators of this relationship.

2.3 Parenting Variables of Possible Import

In contrast to the available literature on maternal drinking and parenting, there is a massive fund of knowledge concerning parental variables predictive of antisocial behaviour and behaviour

problems. A few studies will be mentioned simply to illustrate potential variables of import. Social disadvantage (low socioeconomic status) is a parenting variable that has been linked in studies seemingly from time immemorial to antisocial behaviour. That not fitting the basic societal norm leads to non normative behaviour is, although problematic, not hard to understand. Heavy drinking does correlate negatively with SES requiring the consideration of this variable in all analyses. The relationship to parenting is however more complex as, for example, it has been shown that social class interacts with interpersonal security so that individuals low in both tend to use adult centered approaches to children involving coersive power (Booth et al., l99l). In another related study (Pedersen & Yoerger, l995), early arrest and adolescent physical trauma was predicted from type of parental discipline, the monitoring of children, changes in family structure, and the amount of unsupervised time spent outside the home. Further, low parental academic achievement has been associated with ineffective discipline practices and subsequent antisocial behaviour and academic difficulties in offspring (DeBaryshe et al., l993).

When SES is controlled, children from single mothers, stepfathers or multiple transition families, particularly the latter, are seen at risk for antisociality (Capaldi & Patterson, l996). Alcoholic families have been shown to have higher frequencies of divorce (Von Knorring, l99l). A recent study (Dépelteau et al., l998) found that sons of paternal alcoholics from intact families were more disruptive at ages 7 to l0. Another factor requiring consideration is maternal depression. Fifty percent of women in the National Comorbidity Study are seen as displaying additional psychopathology, many depression (Kessler et al., 1997). The negative effect of this condition on offspring's mental health is well detailed. Recently, Weissman et al. (l997), in a prospective study, showed that these individuals were at risk for anxiety, mood, and alcohol dependence disorders.

Poor parental discipline either of an abusive/neglectful nature or involving poor monitoring practices has been related to the development of antisociality (Dishion et al., l99l). Strauss & Cantor (l994) have shown that children who experienced corporal punishment in adolescence, with SES controlled, had increased risk for a series of psychopathological, behavioural, and drug abuse problems. Widom (l993) found that abused/neglected women, but not men, followed prospectively, developed subsequent alcohol abuse problems. Generally, parents of externalizing boys have been shown to be more punative and less nutrative (Florsheim et al., l996), and more harsh and prone to use physical discipline (Stoolmiller et al., l997). These various aspects of

parenting style which are predictive of subsequent problems may in fact be more important than parental use of alcohol or other drugs. Johnson & Pandina (l99l) for example suggest that parental alcohol use is actually secondary to parenting style in determining problematic outcomes.

3. Methodology

The Canadian National Longitudinal Study of Children & Youth (NLSCY), Cycle l, affords a data set with which to investigate maternal drinking and the effect on her offspring. The specific methodology for the survey and the rationale for the determination of questions are detailed in the NLSCY Project Team's overview statement (NLSCY Project Team, l995). The first cycle contains four questions dealing with alcohol consumption:

- During the past l2 months, have you/he/she had a drink of beer, wine, liquor or any other alcoholic beverage?
- During the past l2 months, how often did you/he/she drink alcoholic beverages (7 ratings possible from daily to less than once a month)?
- How many times in the past l2 months have you/he/she had five or more drinks on one occasion? and
- In the past l2 months, what is the highest number of drinks you/he/she had on one occasion?

The stated reason for the inclusion of these questions was "because of the potential impact on adults' physical or mental health, the family's economic situation, and family relationships" (NLSCY Project Team, l995).

The brevity and nature of these four questions present a number of restrictions for any subsequent analyses. First, currently the "field" defines the abuse of alcohol in terms of the consequences of drinking rather than the frequency/quantity of alcohol consumed. Additionally, questions appropriate to previous or current definitions of dependency are lacking. Thus, direct application of the results to the growing abuse/dependency literature is somewhat problematic. Second, in analyzing drinking, traditionally and importantly, one would also want to compare quantity consumed by frequency of drinking while also considering dosage, the time taken to consume the drink, and the weight and sex of the individual. The survey does not define "a drink," a certain quantity per drink, the weight of the subject or the time course when drinking. Also unknown is whether individuals who may not have consumed alcohol in the past l2 months were previously problem drinkers. Inspite of these concerns, the question "how many times in

the past l2 months have you had 5 or more drinks on one occasion?" does permit a rough estimate of the frequency per year that blood alcohol level exceeded 0.08%. Conrod et al. (l997) have demonstrated that this estimate correlates highly with other self-report estimates of alcohol consumption, frequency of estimates of intoxication, and laboratory volume of alcohol consumed. Further the measure of frequency per year that blood alcohol level exceeded 0.08% has been shown to be successful in discriminating between the presence and absence of problem drinking symptoms (Conrod et al., l997). Hence, the definition of severity of drinking selected for analyzing the NLSCY data was drinking *per se* and the frequency of consuming five or more drinks on one occasion.

A priori, four groups were formed, non drinkers, light drinkers, moderate drinkers, and heavy drinkers. The non drinkers were those who had not consumed alcohol in the past l2 months. The light drinkers, for women, were individuals who had never consumed more than 5 drinks per occasion and for men, for whom data were also available, those who had done so on less than 7 occasions. Moderate drinking women were defined as having less than l2 occasions of five or more drinks while for men it was 7 to 52 occasions. Heavy drinkers for women were those who had more than l2 occasions per year of 5 or more drinks and for men more than 52 occasions. These groupings were based on the results from the study by Conrod and colleagues (l997), in which men were characterized as heavy drinkers if they consumed 5 or more drinks on more than 52 occasions per year. Further, as the National Institute of Mental Health Epidemiologic Catchment Area study found that alcohol abuse/dependence is considerably more prevalent among men than among women, by a factor of about 5 to l (Helzer and Pryzbeck, l988), we attempted to approximate this same male/female ratio of heavy drinkers in the present study by characterizing women as heavy drinkers if they consumed 5 or more drinks, on more than l2 occasions per year. For the characterization of light drinkers, the number of times per year men or women would consume 5 or more drinks on one occasion needed to reflect quantities of alcohol which would most likely not intoxicate women, and rarely intoxicate men. Lastly, the moderate drinker group was defined by default, being those who did not meet inclusion criteria for either heavy or light drinking groups.

Although there does appear to be some support for our classification of drinker groups, alcohol researchers have not agreed on operational definitions for "Light", "Moderate", and "Heavy" alcohol consumption. In a review by Abel and Kruger (l995), examples were given to illustrate

the great disparity in the operational definition of these terms: “Moderate” consumption has been variously described as l-l3 drinks/week (Virji, l99l), 4-l3 drinks/week (Williams and DeBakey, l992), 5-l0 drinks/week (Sulaiman et al., l988), l-7 drinks/week (Thorogood et al., l993), and 7-20 drinks/week (Rostand et al., l990). “Heavy” drinking has been characterized as l0-l2 drinks/week (Sulaiman et al., l988), 8 or more drinks/week (Thorogood et al., l993), l4 or more drinks/week (Williams and DeBakey, l992), 2l or more drinks/week (Rostand et al., l990), or more than 28 drinks/week (Greeley et al., l993).

In the NLSCY survey 89.l% percent of the questionnaires were completed by the children’s biological mothers. Hence, we decided to analyze only those surveys completed by the biological mother and for the most part focused on her drinking behaviour. Table l presents descriptive data for the four groups for the mothers who completed the survey. The age, number and percentage of women fitting each group as well as similar data for their spouse are presented.

Table 1: Descriptive Data on Sample

	Mean Number of Children in Household	Mother			Spouse		
		Number	%	Mean Age	Number	%	Mean Age
Non Drinkers	2.16	2475	21	32.6	2134	21.5	35.6
Light Drinkers	2.03	5766	48.6	33.4	5078	51	36.2
Moderate Drinkers	1.92	2650	25.6	31.2	2443	24.6	34.4
Heavy Drinkers	1.93	366	3.5	31.5	274	2.7	35.5

These results support the classification of groups employed in this study. The proportion of women heavy drinkers for example draws support from other studies. The National Institute of Mental Health Epidemiologic Catchment Area Program estimated the one-month prevalence US rate of alcohol abuse/dependence to be 2.8% in noninstitutionalized adults between l980-l984, and 4.7% for 6 month prevalence (Regier et al., l988). Although data for the latter study was collected about l5 years ago, surveys in the US and Canada conducted over the past 2 decades have found little evidence of major changes in drinking levels or drinking problems among women in general (Wilsnack and Wilsnack, l99l). Further, a report from the National

Comorbidity Survey (Kessler, et al. l994) showed the l2 month prevalence for men for alcohol abuse was 3.4% and for dependency was l0.7% while for women it was respectively l.6% and 3.7%.

Other studies support some aspects of the proportions in each of the drinker groups of the present investigation. For example, in a study by Lipton (l994), 928 men and women of the Los Angeles Epidemiological Catchment Area were grouped into 23.8% abstainers, l3.l% light, 22.0% light moderate, 23.8% moderate, and l7.2% heavy drinkers. In a prospective study (Wannamethee and Shaper, l997) of cardiovascular disease involving 7735 men ages 40-59, 9.7% were non- or ex-drinkers, 29.7% were occasional drinkers, 37.l% were light drinkers, l9.3% were moderate drinkers, and 4.l% were heavy drinkers. Furthermore, the proportion of heavy drinkers in the present study is also similar to that of Caracci (l992), who found that 3.2% of female subjects reported they were heavy drinkers. Lastly, the proportion of abstainers in the present study also replicates that found by Slicker (l997), where l9.6% of a sample of university students were abstainers. Notably, when compared to percentages of individuals with dependency problems in society, it would appear that our heavy drinking category is perhaps even more stringent than typical psychiatric diagnostic criteria.

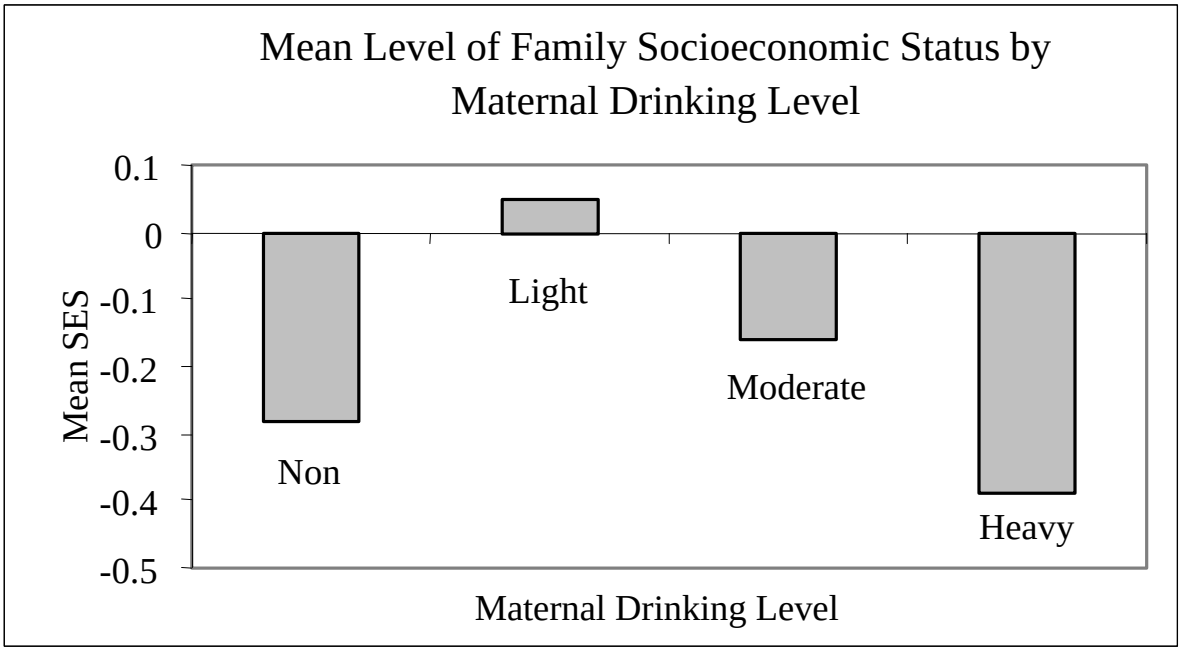
The disproportionate number of individuals in the various drinking categories generally obviated against using a continuous analytic procedure throughout the variables. Where possible, analysis of continuous data was completed and results generally conformed to the ascertained group differences reported below. Appendix 1 lists the variables against which drinking level is compared. Variables were analyzed under the headings: “Family Characteristics”, “Maternal Health”, “Maternal Ratings of Child’s Behaviour”, “Teacher Ratings”, and “Child’s Self-Report”. In addition, 4 and 5 year olds completed the Peabody Picture Vocabulary Test; school-aged children completed mathematical abilities tests; 10 and 11 year olds completed a self-report questionnaire. The data of one child per mother was randomly selected for analysis so as to avoid the presence of a family bias predicated on the number of children. All analyses were done on weighted means which corrected for possible sampling biases. That is, the obtained sample was corrected to conform with actual representations as reflected in the census. In addition, because of the large number of variables (Appendix 1) and subsequent analyses, a stringent criterion of significance of $p<.001$ should be considered. All other findings should be viewed as trends.

4. Results

4.1 Family Characteristics of the Drinking Groups

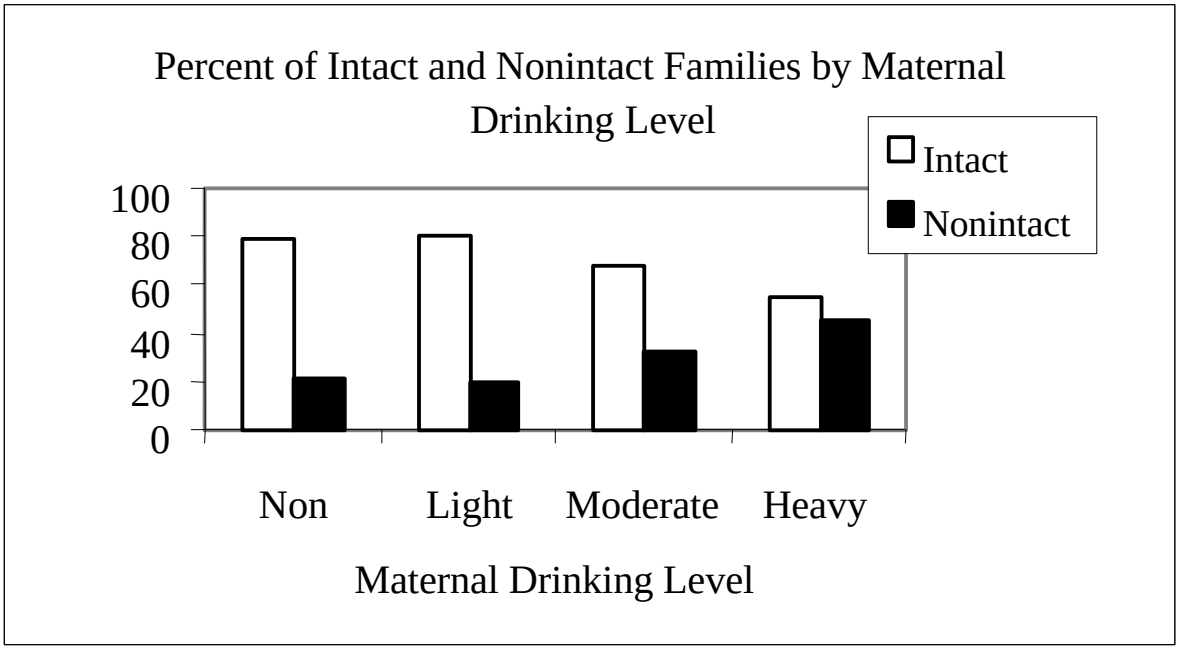
Figure l reflects significant differences found when comparing the drinking groups on the survey's composite measure of socio economic status (SES) (F=137, df 3, p<.000). Comparison between groups revealed that the light drinking group had a significantly higher socio economic status level than the other three groups. This difference was hence considered in all remaining analyses where SES was used as a covariant. The need to consider socioeconomic status separately is further illustrated by the fact that there was a significant difference on a scale measuring home ownership, with the heavy drinking group significantly less likely to own their home than the other groups (x^2 = 142.71, df 3, p<.000).

Figure 1:



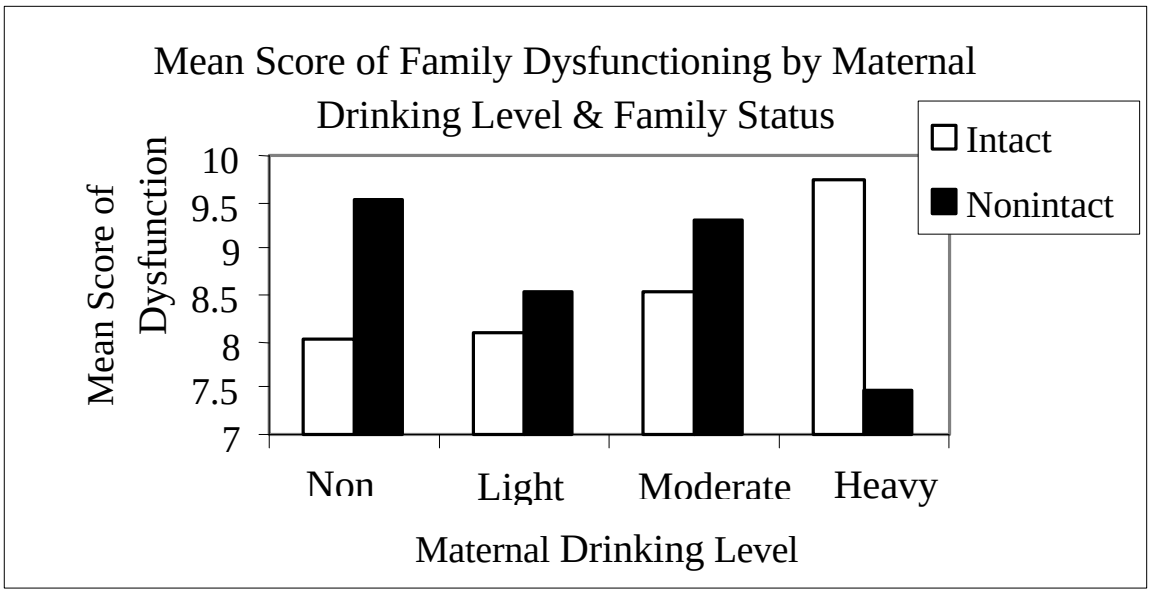
Similarly, the information concerning differential effects of intact and nonintact families on children (Depelteau et al., l998) resulted in a consideration of that variable. Specifically, an intact family was defined as the biological mother and father living together at the time the survey was completed and a nonintact family as any other type of arrangement. Thus, the four drinking groups were also divided into intact - non-intact groups. A highly significant result was obtained ($X^2 = 262.89$, df 3, $p < .000$). Figure 2 illustrates the increased percentage of nonintact children for heavy-drinking mothers. As this paper focuses on drinking behaviour, intact -nonintact status was treated as an independent variable in most subsequent analyses.

Figure 2:



The NLSCY composite variable “family functioning”, plotted as family dysfunction, is thought to represent a global assessment of the quality of the family relationships. Measures which make up this score came from scales assessing the familial behaviour of problem solving, communication, roles, affective responsiveness, affective involvement and behavioural control. An analysis of this measure resulted in a drinking group effect ($F = 7.28$, df 3, $p < .000$) and alcohol by intact interaction ($F = l4.04$, df 3, $p < .000$). These results are illustrated in Figure 3. This figure demonstrates generally poorer family functioning in nonintact families except for heavy drinkers where intact families had poorer family functioning.

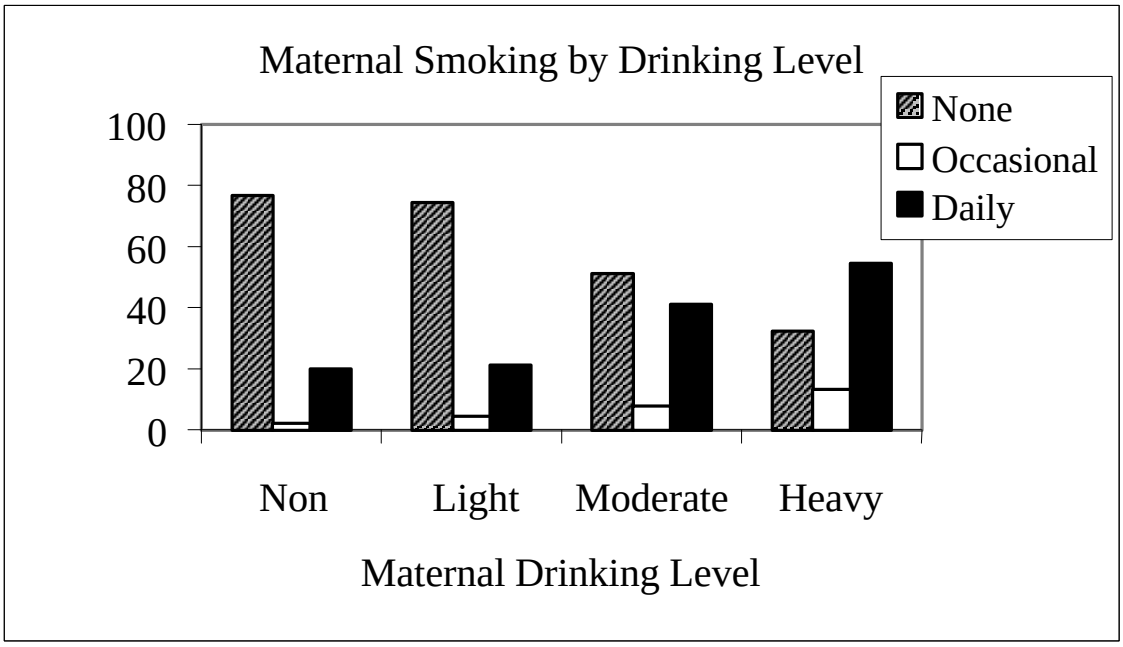
Figure 3:



4.2 Maternal Health

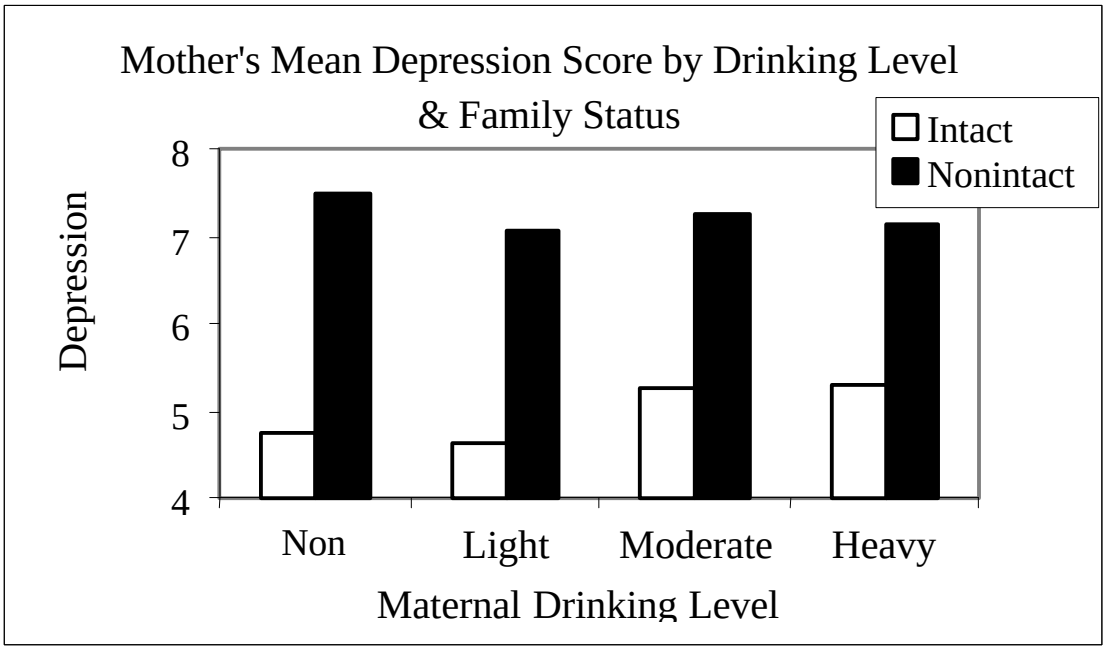
Given the well known relationships between certain health problems and drinking, significant results were expected. Generally these were not found, although, heavy drinkers were less likely to report that their general health was excellent than the other groups ($x^2 = 91.66$, df l2, $p < .000$). Importantly, heavy-drinking mothers reported a greater likelihood of bronchitis or emphysema ($x^2 = 18.65$, df 3, $p < .000$). This result is likely explainable by the fact that heavy-drinking women smoke cigarettes at a higher frequency than the other groups. This is illustrated in Figure 4 ($x^2 = 763.78$, df 6, $p < .000$).

Figure 4:



Numerous studies have shown maternal mental health, particularly depression, is related to child rearing and adjustment problems in offspring. Further, depression and drinking level in women is commonly correlated. Depression is the only aspect of maternal mental health assessed by the Survey. This was accomplished with l7 questions representing a reduced version of the CES-D scale (NLSCY, l995). Figure 5 shows depression scores by drinking levels for nonintact and intact families. An Analysis of Covariance revealed a very strong effect for intact- nonintact ($F = l57.54$, df l $p < .000$) and a trend for drinking ($p < .04$). Consequently, in most of the subsequent analyses depression was also run as a covariate.

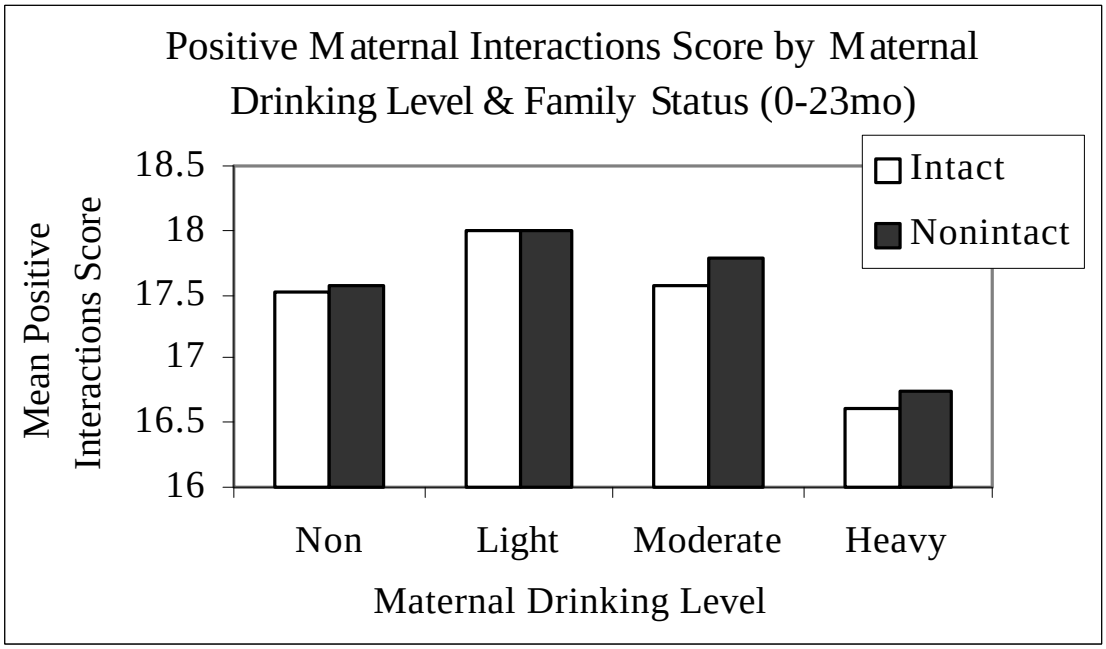
Figure 5:



4.3 Maternal Ratings of Child's Behaviour, Ages 0 to 23 months

The survey contains questions dealing with frequency of early positive maternal interactions, as well as hostile and ineffective parenting. Regarding positive interactions, the heavy-drinking group reported fewer positive interactions than the other three groups. These results are illustrated in Figure 6. For the variable hostile ineffective parenting, there was a trend for alcohol group ($p < .05$), an effect for intact-nonintact ($F = 7.4l$, df l, $p < .007$), and an alcohol group by intact-nonintact interaction ($F = 4.96$, df 3, $p < .002$). Somewhat surprisingly, intact families in the moderate and the high alcohol consuming drinking groups displayed the greatest hostile/ineffective parenting.

Figure 6:



4.4 Maternal Rating of Child's Behaviour, Ages 2 to ll Years

Figure 7 illustrates mother's ratings of her child's emotionality/anxiety presented according to drinking level and family intact status. There was a significant difference for drinking groups ($F = 7.65$, df 3, $p < .000$). Individual comparisons between the drinking groups found that the heavy drinkers rated their children as significantly more emotional and anxious than non drinkers ($F = 25.32$, df l, $p < .000$). Examination of the figure reveals that this difference is primarily a result of strong negativity associated with nonintact status. A similar conclusion can be drawn regarding the mothers' ratings of their child's hyperactivity. These results are illustrated in Figure 8. Statistical analysis revealed a significant drinking group effect ($F = 14.63$, df 3, $p < .000$) and intact status effect ($F = 12.04$, df l, $p < .001$).

Figure 7:

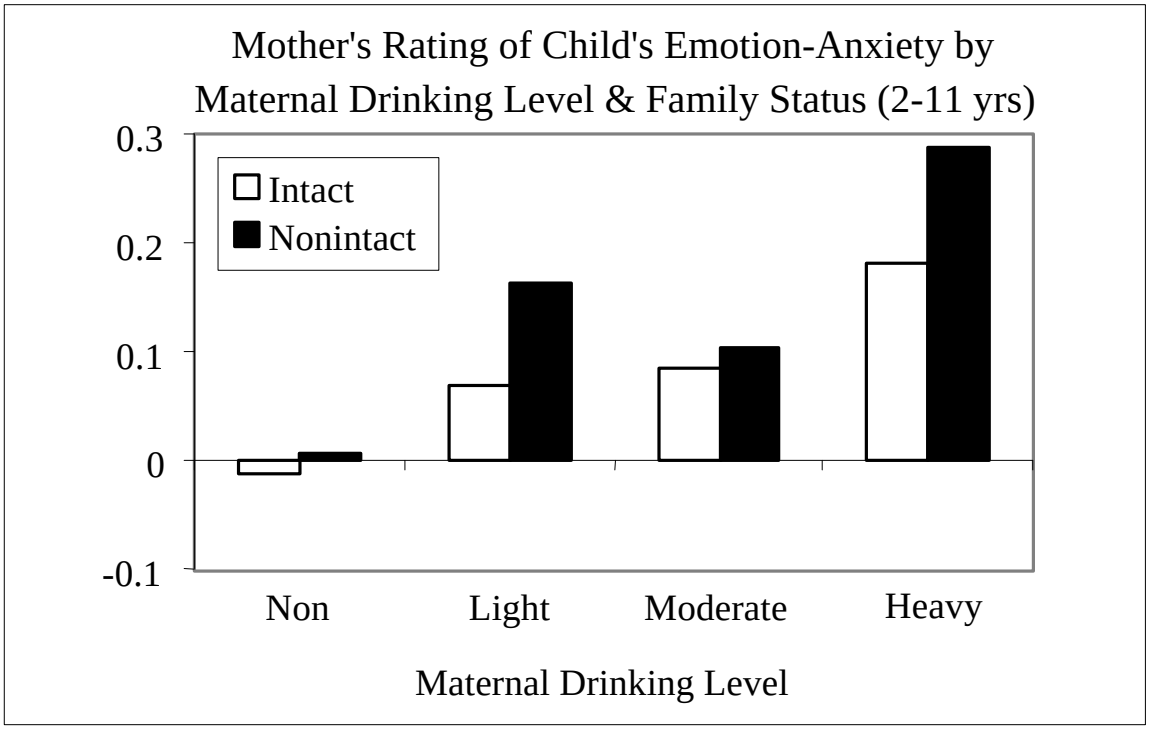
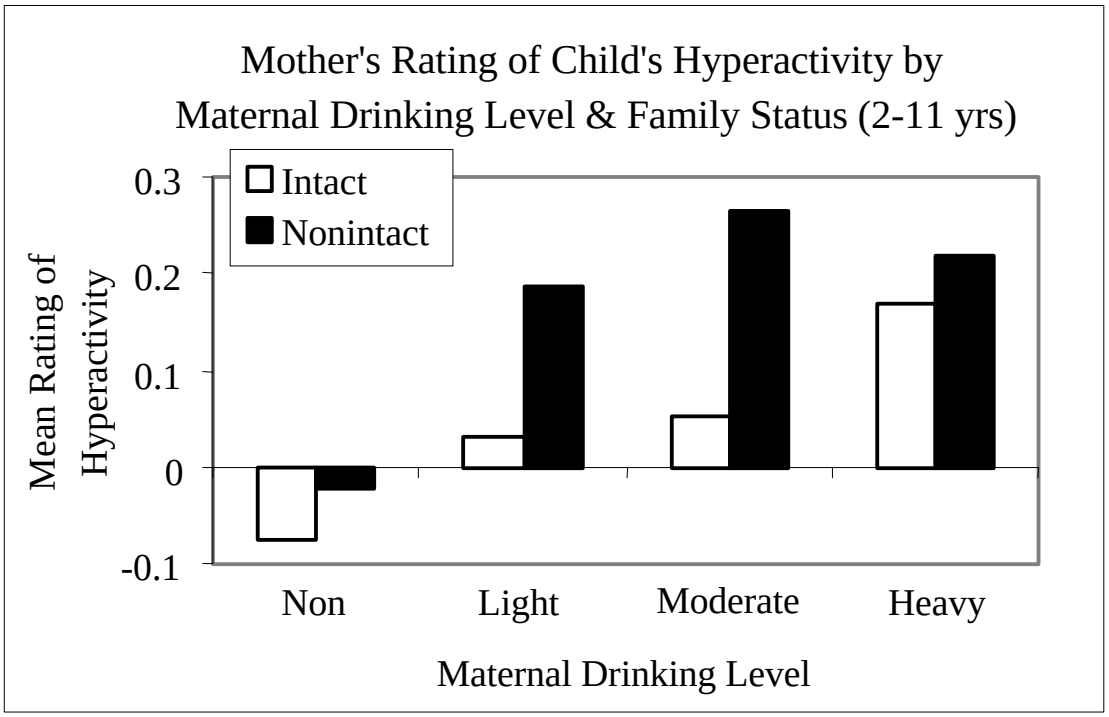
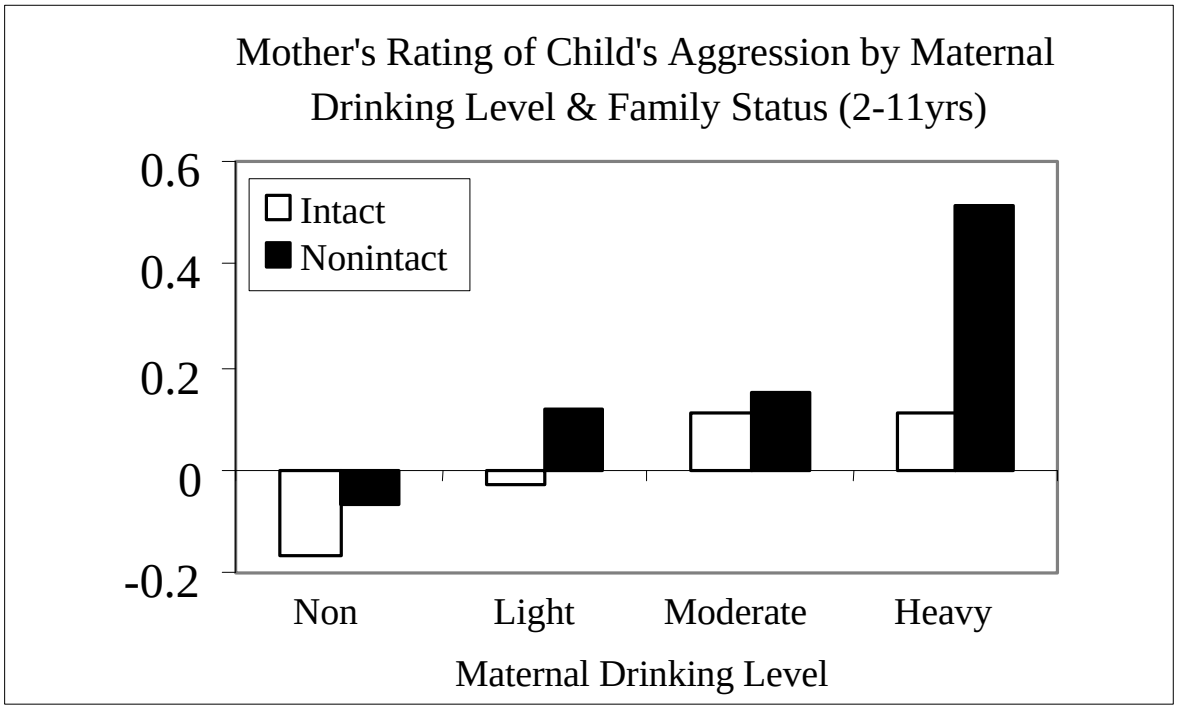


Figure 8:



Individual comparisons showed that heavy and moderate drinkers differed significantly from non and light drinkers in their ratings. Mothers' ratings of their child's aggressivity also resulted in significant drinking group ($F = 26.84$, df 3, $p < .000$) and intact status ($F = 24.26$, df l, $p < .000$) findings. Individual comparisons revealed heavy drinkers differed from non drinkers ($F = 25.53$, df l, $p < .000$), light drinkers ($F = 9.86$, df l, $p < .002$) and moderate drinkers ($F = 6.88$, df l, $p < .009$) in rating these children as more aggressive. These results are illustrated in Figure 9.

Figure 9:



Consistent with the findings of greater emotionality and anxiety, hyperactivity and aggressivity in children ages 2 to ll, mothers from nonintact families and heavy-drinking mothers saw themselves as engaging in fewer positive maternal interactions with their children and more hostile-ineffective parenting. These results are illustrated in Figures l0 and l1.

Figure 10:

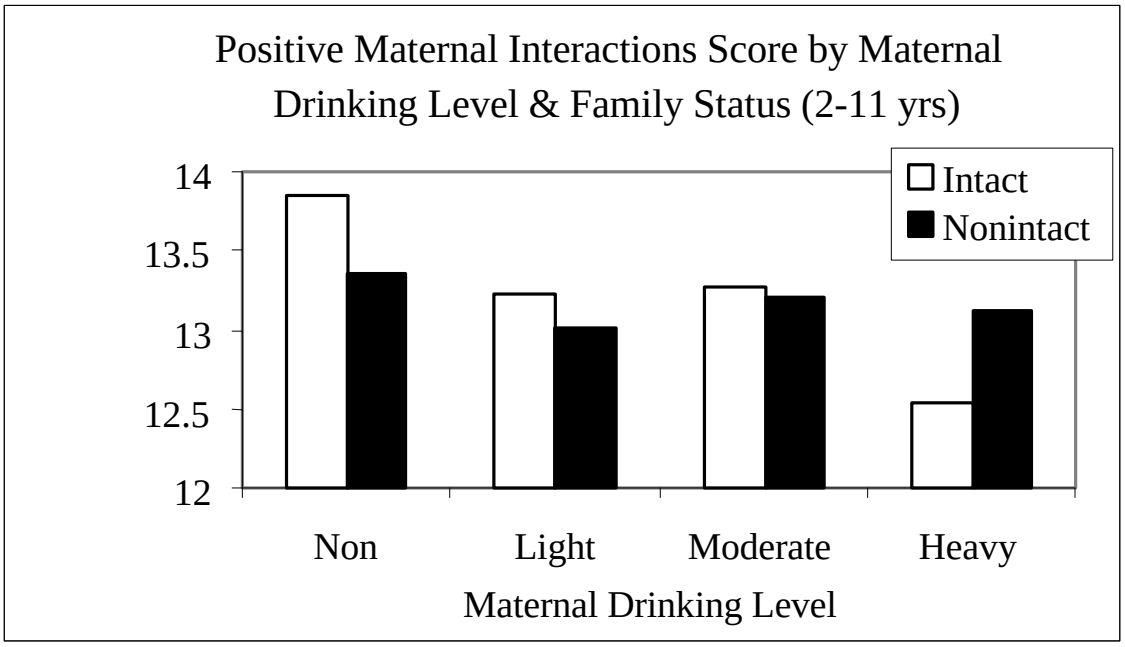
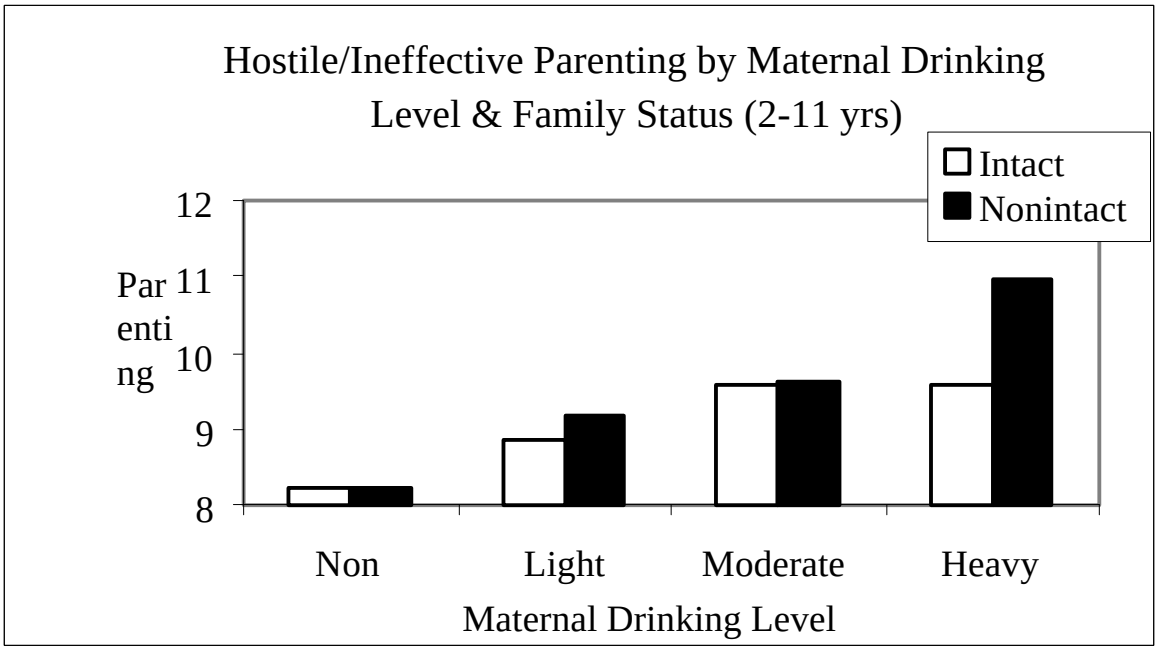


Figure 11:



For positive interactions, the drinking group difference was F=9.09, df 3, p<.000, and there was also a trend for a drinking group by intact interaction (p < .04). Individual comparisons determined that the heavy-drinking group displayed significantly fewer positive interactions than the other groups (F = 47.l3, df l, p < .000). Illustrated in Figure l0 is the fact that it was intact heavy-drinking mothers who showed the fewest positive interactions. For the variable hostile-ineffective parenting, the results were, for drinking group, F = 48.29, d 3, p < .000; for intact status, F = l0.85, df l, p < .001; and for drinking group by intact status, F = 3.52, df 3, p < .0l4. As illustrated in the figure, most of the differences were accounted for by the heavy-drinking, nonintact mothers. In terms of individual comparisons the heavy-drinking group was significantly different than the non drinking group (F = l45.25, df l, p < .000), the light drinking group (F = l6.08, df l, p < .000), and the moderate drinking group (F = l7.99, df l, p < .000).

Separation anxiety in their children was also rated by mothers of 2-3 year olds. Analyses revealed a significant drinking group effect (F = 7.29, df 3, p < .000) with the children of mothers in the heavy-drinking group rated as displaying the most separation anxiety.

4.5 Additional Maternal Ratings and Ratings from Ages 4 to ll

The survey contains some questions that began being rated at age 4. These included measures of indirect aggression and aspects of conduct disorder. Indirect aggression was assessed from the questionnaire developed by Lagerspetz, Björkqvist & Peltonen in Finland and aspects of conduct disorder were derived from a composite measure taken from the Ontario Child Health Study (See NLSCY Project Team, l995). With SES and age covaried, the drinking group effect for indirect aggression was significant (F = l7.55, df 3, p < .000) as was the conduct disorder measure (F = 34.32, df 3, p < .000). Individual comparisons for indirect aggression showed that the heavy-drinking group was significantly different from the non drinkers (F = 55.02, df l, p < .000) and light drinkers (F = 58.54, df l, p < .000). Similar comparisons for conduct disorder showed the children of the heavy-drinking group differed significantly from the non drinkers (F = 25.37, df l, p < .000) and moderate drinkers (F = 34.58, df l, p < .000). Gender effects were also found on these variables (indirect aggression F=71.67, df 1, p<.001; conduct disorder F=41.64, df 1, p<.000). In both instances, the maternal drinking effect held for both sexes, although boys were more affected for conduct disorder and girls for indirect aggression. Figure 12 illustrates a combined direct and indirect aggression score by drinking group, intact-nonintact status and

gender. Figure 13 is an analysis of property crimes by these same variables. For direct and indirect aggression, there were significant effects for drinking groups (F=15.68, df 1, p<.000), intact status (F=22.51, df 1, p<.000), and sex (F=81.81, df 1, p<.000). As shown in Figure 12, boys were more affected by familial non-intact status. For the variable of property offences, there was a drinking (F=24.37, df 3, p<.000), intact status (F=22.54, df 1, p<.000), and gender effect (F=75.13, df 1, p<.000). Clearly, males of moderate and heavy-drinking mothers are reported to commit more of these offences.

Figure 12:

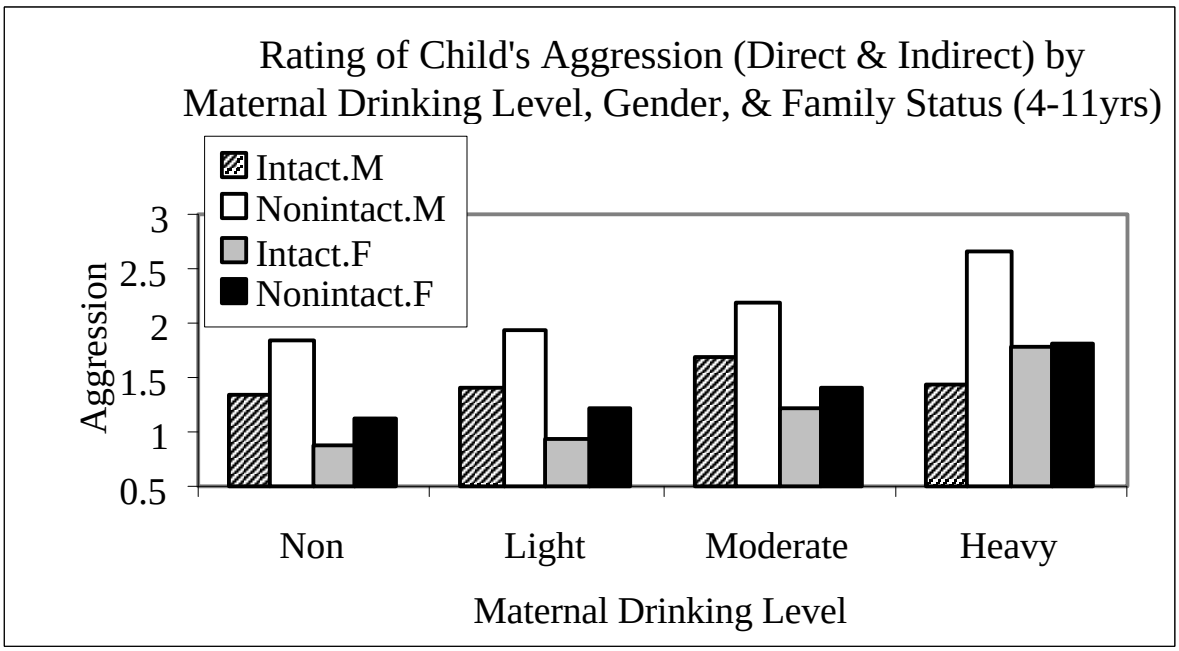
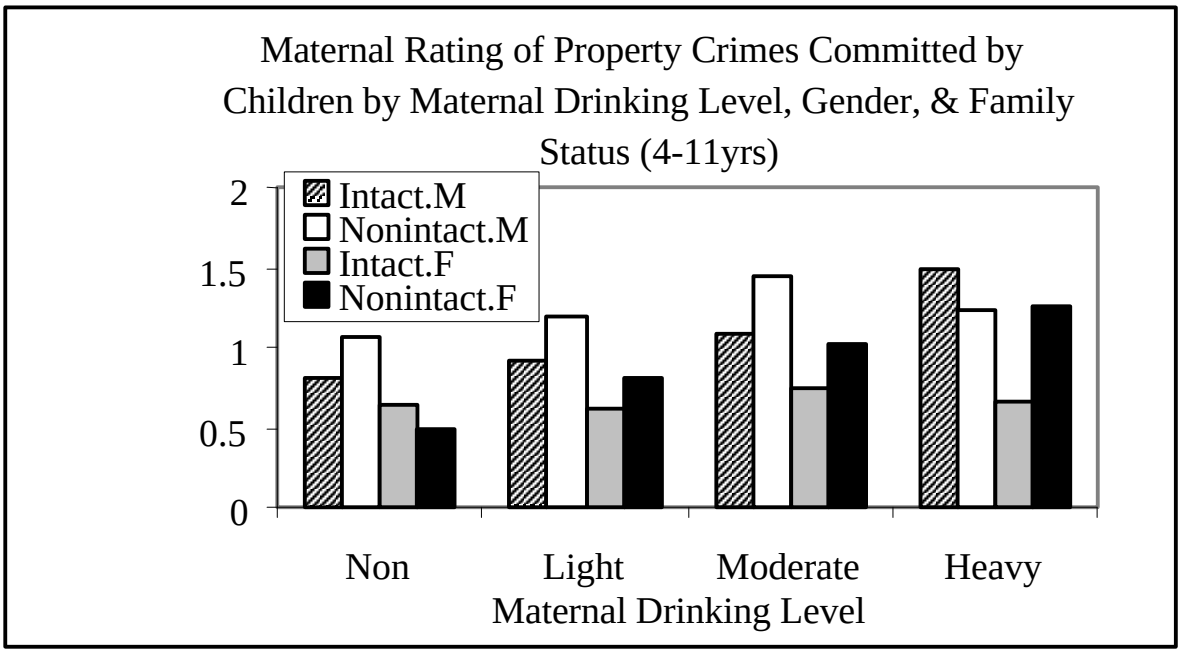


Figure 13:



4.6 Teacher Ratings

Relevant to the mothers' ratings, data are also available from teachers. In particular, the survey contains questions that deal with parental involvement with the child in regard to school and the child's behaviour. Concerning involvement with the school, the four drinking groups were assessed on three variables. These were: the teachers' ratings of whether parents discussed the student's performance, the teacher's belief on how important the parents evaluate the school, and the degree of parental support demonstrated to the teacher. Respective chi square differences between the drinking groups for these variables were $x^2 = 38.93$, df 3, $p < .000$, $x^2 = 53.34$, df 6, $p < .000$, $x^2 = 33.48$, df 6, $p < .000$. On each of these three questions it was the heavy-drinking parents who were seen as less involved and supportive. Teachers also rated the child's behaviour for conduct disorder/aggression, hyperactivity, prosociality and degree of emotionality. Teacher's rating of conduct disorder/aggression for the maternal drinking groups is illustrated in Figure l4 and for child hyperactivity in Figure l5. For conduct disorder/aggression, there was a significant effect for drinking group ($F = 4.27$, df 3, $p < .005$), and for intact status ($F = 46.10$, df l, $p < .000$); and, for hyperactivity, there was a drinking group ($F = 3.73$, df 3, $p < .01$) and intact-nonintact status ($F = 19.15$, df l, $p < .000$) effect. Individual comparisons revealed that for

conduct disorder/physical aggression, heavy drinkers were significantly different from non drinkers (F = 12.60, df l, l < .000) and light drinkers (F = 4.46, df l, p < .03).

Figure 14:

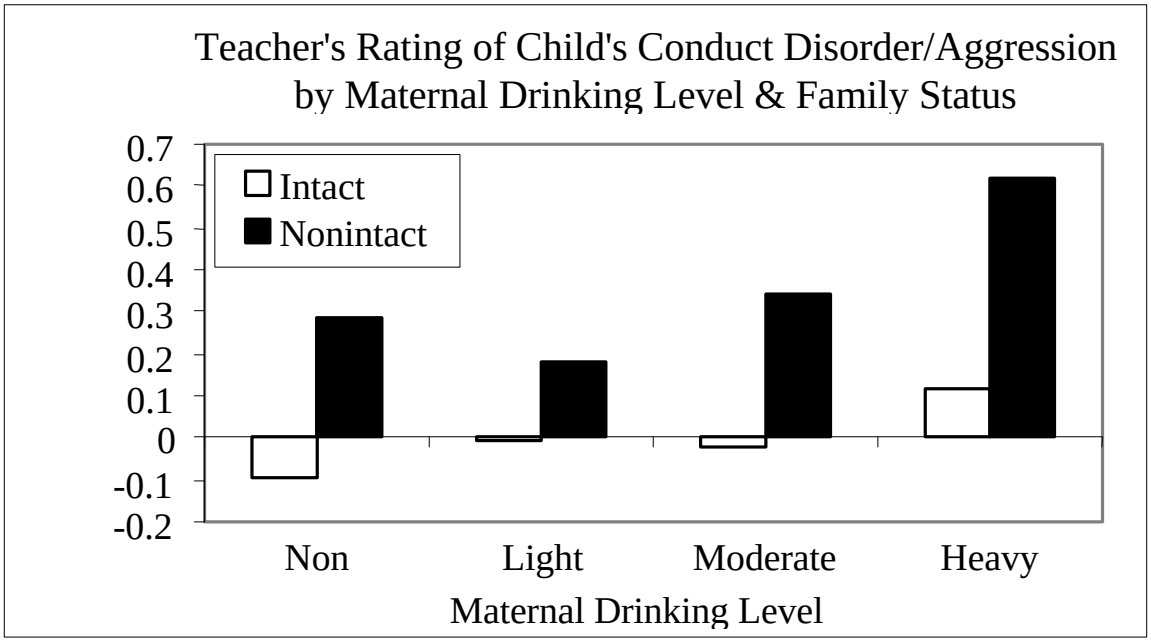
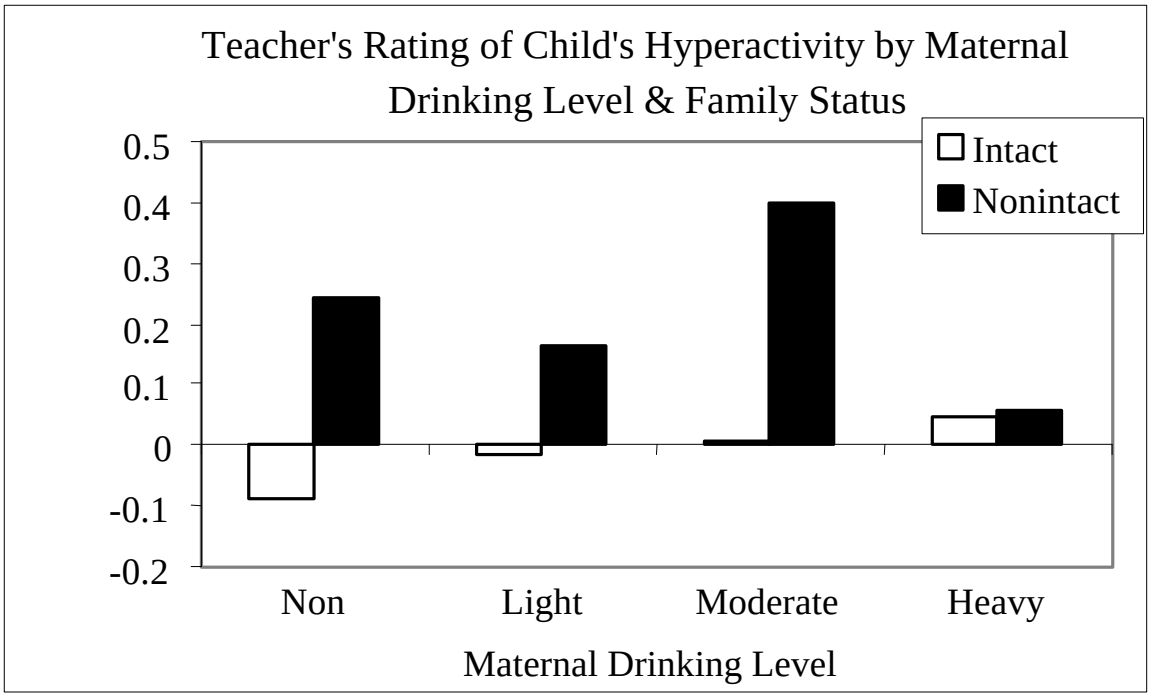


Figure 15:



The importance of intact/nonintact status was reflected in teachers' ratings for prosociality and presence of emotionality. On both of these variables only the intact status variable was significant (respectively, F = ll.57, df l, p < .00l and F = 44.93, df l, p < .000). We constructed a composite variable for teachers' ratings of aggressivity, hyperactivity, emotionality and negative prosociality as a putative measure of deviancy. We considered those scores over the 90th percentile, on two or more of these scales. When the drinking groups were thus analysed, there was a clear maternal drinking effect (x^2 = 18.19, df 6, p < .006). A similar but stronger finding occurs when the same variables are analyzed in a similar fashion for mothers' ratings (x^2 =41.52, df 6, p < .000). Thus there is some degree of continuity between maternal and teacher ratings.

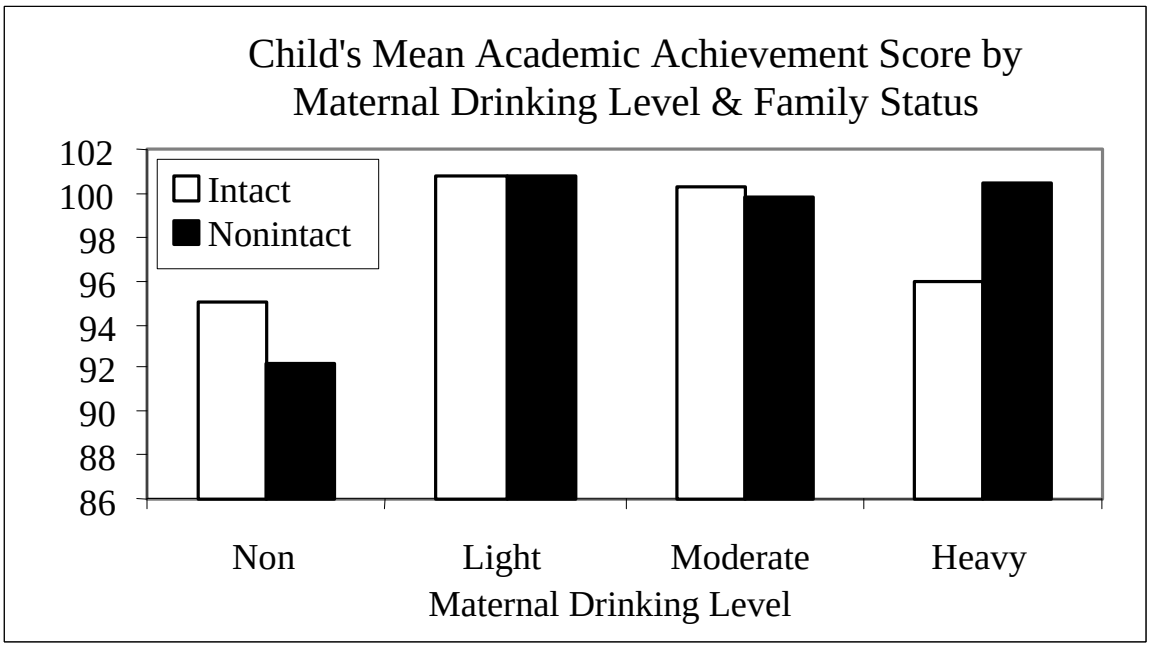
4.7 Child's Self Report and Test Scores

A self-report questionnaire was filled out by children between the ages of l0 and ll. The behavioural aspects of this scale measured such things as conduct disorder/physical aggression, emotional disorder, indirect aggression, hyperactivity/inattention, prosocial behaviour, and difficult behaviour. When these variables were analyzed by maternal drinking level and intact and nonintact status, none of the findings reflected a maternal drinking effect, yet all yielded a significant intact-nonintact finding with one exception (prosociality). Clearly, l0 and ll year old children from nonintact families see themselves as troubled and troublemaking. The results were for conduct disorder/physical aggression (F = ll.37, df l, p < .00l), indirect aggression (F = 5.80, df l, p < .0l6), emotional disorder (F = l0.02, df l, p < .002), hyperactivity/inattention (F = ll.26, df l, p < .00l), and for difficult behaviour (F = 5.7l, df l, p < .02). Children between the ages of 4-5 also completed the Peabody Picture Vocabulary Test (PPVT) and those in grade 2 and higher a Mathematics Achievement Test. The academic achievement results are illustrated in Figure l6. For the PPVT the only significance was for the drinking variable (F = 10.51, df 3, p < .000), with the children of heavy drinkers scoring significantly higher than those of non drinkers (F = 16.44, df l, p < .000) and light drinkers (F=10.40, df 1, p<.001). There were no significant differences found for the Math test data.

Individual self-report items did however display a pattern of responses for the l0-l1 year old offspring of heavy-drinking mothers. These individuals worried more about their parents divorcing (X^2 = 26.47, df 3, p < .000), were more likely to play video games (X^2 = 7l.06, df 9, p < .000), had the most trouble getting along with other kids (X^2 = 79.28, df 9, p < .000), were

more likely to have drunk alcohol (X^2 = 47.68, df 3, p < .000), and were most likely to have been questioned by the police (X^2 = l4.8l, df 3, p < .002).

Figure 16:



5. Discussion: Limitations

The above results, statistically significant, rather consistent and seemingly ripe for bold conclusions and policy recommendations must first be considered in the appropriate methodological context. The study, the analyses, and the results have real and apparent limitations. We have already detailed problems with the major independent variable, drinking alcohol. Although it was argued that the number of times a person's blood alcohol exceeds .08 is a good proxy for current diagnostic definitions and the number of times one had 5 or more drinks on one occasion is in turn a meaningful approximation for that number, glaring assumptions are necessary. In short, much critical information is lacking, i.e., dosage, time course, weight of subject, etc. Further, our definitions for separating the drinking groups into non drinkers, light, moderate and heavy drinkers reflect problems and a certain arbitrariness. It is unknown for example what the drinking history of any individual was beyond the preceding l2 month window which was all that was ascertained. Thus, ex heavy drinkers might be in the non drinker group etc. Nevertheless, the similarities between the obtained population percentages for each group and results from other surveys lends some justification to the selected definitions. Additionally, if ex heavy drinkers abstained for the past l2 months and were considered non drinkers, their history of drinking could be seen as deleterious to their children which would obviate against the obtained group results in this study.

Another drinking confound is that, in the data that have been presented, the father's drinking was not considered. The information on fathers that is available, in addition to all of the caveats just listed, represents second hand information. We have, however, analyzed most of the variables discussed above by level of drinking in both the mother and the father. Complete cross comparisons of all groups was obviated by the small number of non drinking fathers with heavy-drinking mothers. However, graphing and statistical analyses of the relevant variables and comparison of means where both parents are non, light, moderate, or heavy drinkers did not strengthen or produce any new findings.

Many of the dependent variables also require consideration. For the most part, assessed variables represented a composite score from a grouping of questionnaire items. These were carefully considered by the committee which set up the NLSCY. However conflicts between the pressures of broad interest and procedural time constraints are abundantly predictable and evident. Thus,

one must be aware that many variables represent abbreviated versions of existent scales and therefore basic psychometric questions of reliability, validity and applicability are germane. The best reply to this concern is the consistency of the picture portrayed by the obtained data.

Procedural caveats include the self report nature of the data, the issue of the power of the statistical analyses and the meaning of the data given the large number of subjects, and the role of correlated variables in determining the obtained results. The issue of the accuracy of self-reported alcohol consumption from users and abusers of alcohol should be addressed. Despite possible concerns, there is empirical support for such self-reported procedures, which are generally evaluated as reliable (O'Farrell & Maisto, l987; Sobell & Sobell, l986; Sobell & Sobell, l990). In fact, self-reported alcohol consumption provided by alcohol misusers has been found to be more accurate than information collected from official records or collateral reports (O'Farrell & Maisto, l987; Sobell & Sobell, l986). More recently, the use of a biological marker of heavy drinking as an external standard to assess the effects of social desirability on self-reported abstaining by alcoholics suggested that high social desirability did not bias responses on alcohol use (Yoshino and Motoichiro, l995). Lastly, although it may have been possible to reduce recall problems by reducing the time frame of the questions from one year to one month, this does not seem to be necessary. In a longitudinal study assessing the reliability of alcohol intake as recalled from l0 years in the past, the correlation for recalled alcohol intake versus reported intake at baseline was good (Liu et al., l996). In light of this, recall over a one year time span does not seem to represent a threat to reliability due to recall problems.

The sample size of the NLSCY is enormous, offering statistical power well beyond the traditional study and magnifying small differences into significance. Indeed, though highly significant, correlations between variables, and effect sizes generally were modest. However, this caveat represents a statement of caution not a disclaimer. It certainly is the case that most children of heavy drinkers, like alcoholics (Searles & Windle, l990) and in fact prenatally exposed children (Abel & Hannigan, l996) are non-problematic. This is why there is a need for exactly this large a sample to determine existent relationships. Some illustrative examples of low but very practical correlations from other areas are warranted; between daily aspirin and preventing a second heart attack r = .034, between taking AZT and survival with AIDS r = .23, and between cyclosporine and transplant survival r = .l5 (Rosenthal, l990).

Early in our analysis of the data, the impact of SES became apparent. Subsequently, maternal depression and then intact-nonintact status loomed critical. Which other variables in this data set correlate with drinking and possess explanatory value remains an open question. Also deserving of more attention are paternal drinking and maternal prenatal exposure. We believe we have partially accounted for both parents drinking showing that when this occurs the effects determined for maternal heavy drinking were neither enhanced nor reduced. The possibility that the increased problems seen in children of heavy maternal drinkers might not be related to parenting practices but to prenatal exposure to alcohol is a particularly important concern.

The survey does contain questions which ask if the mother of children ages 0-23 months old continued drinking during pregnancy. Table 2 presents the percentage of women in each drinking group who drank during pregnancy and to what degree. Because of the age range restriction, the sample size was very small, particularly for heavy drinkers who drank once a week. Thus limiting statistical analyses. The percentages presented in Table 2 do show, however, that heavy drinkers are more likely to drink during pregnancy and that very few of the non drinkers were previous drinkers. Clearly, this is an important variable that requires further consideration, control and study. Recent reviews (Mattson & Riley, 1998) and animal work (Braun, 1996) underscore the broad spectrum of problems produced by alcohol consumption by pregnant individuals.

Table 2: Percentage of Alcohol Consumed During Pregnancy By Women in the Four Drinking Groups

Amount of Alcohol	Drinking Level			
Consumed During Pregnancy	Non	Light	Moderate	Heavy
None	98	79.5	76.5	37.5
Less than once/month	1.2	17.3	7.3	9.4
1-3 times/month	.3	2.6	3.7	46.9
once/week	.3	.3	1.4	6.3
2-3 times/week		.3		
4-6 times/week			1.0	
Everyday	.3			

6. Conclusion

The major findings of this study are: Heavy maternal drinking is deleteriously related to health consequences for the mother, parenting toward her children, and behavioural and emotional problems in her children. These findings remain, even when highly correlated variables, SES, depression, intact-nonintact status, each also reflecting important results, are controlled.

The family functioning of heavy-drinking mothers, particularly intact families, is seen as more negative. This means that partner communication, control, and affective involvement and responsiveness are problematic. This finding suggests the role of heavy drinking as a significant stressor between couples. Heavy-drinking mothers also smoked more than the other groups and had a concomitant increase in the related diseases of bronchitis and emphysema. The synergy that exists between heavy drinking and smoking, particularly the belief of some sort of algebraic sum of the effects of these drugs which adds to the dual addictiveness, needs to be explored (Pihl et al., l998).

Heavy-drinking mothers find their children more problematic, engage in fewer positive interactions with them, and rate themselves as more hostile and ineffective toward them. These mothers see their children as more emotional/anxious, hyperactive, aggressive, and as displaying more separation anxiety, and as they get even older committing more property crimes than children of mothers in the comparison groups.

This is a profound, consistent, picture of negativity associated with heavy-drinking mothers. It is easy to paint a scenario of how less positive and more negative interactions of the mother would be responsible for the development of her child's problematic behaviour. It is also tempting to paint the heavy-drinking mother in dark disturbed tones. Although both of these explanations are possible, the directionality of the putative mechanisms may well be interactional. That is, difficult child=poor parenting. Bidirectionality of causality has been suggested in a number of studies. Blackson and colleagues (Blackson et al., l996) found that parenting interacted with the child's difficult temperament to increase externalizing and internalizing behaviour problems. In a study of sons of alcoholics, it was those children who showed disruptive behaviour who had mothers who were less militant and demanded obedience (Dobkin et al., l997). Succinctly put,

"the child acts; the environment reacts; and the child reacts back in a mutually interlocking-evocative interaction" (Caspi et al., l987, p. 308).

The general confirmatory nature of the mothers' ratings by the teachers' ratings supports the validity of the maternal ratings. Less involved, perhaps negative parenting is suggested by the less interest and support for school seen in heavy-drinking mothers. Of course, teachers were most likely unaware of the drinking habits of any of these parents and thus their ratings can be considered non-biased. Teachers ratings also demonstrated concordance with maternal ratings in finding heavy-drinking offspring more conduct disordered/aggressive and more hyperactive. Finally, both teachers and mothers produced similar significant judgements of negative behaviour on the composite sum-trouble 90th percentile scale.

The l0 and ll year olds who completed this survey did not generally replicate their mothers or teachers ratings on the composite behavioural scales relative to maternal drinking level. They did, however, dramatically do so for intact-nonintact status. Some insights regarding maternal drinking effects can, however, be garnered from the analysis of individual self-report items. Offspring of heavy-drinking mothers reported being more worried about parental stability, were more likely to drink alcohol, be questioned by police, and have trouble getting along with other kids.

Although this study focused on maternal drinking level, the "control" variables of social disadvantage, depression in the mother and the intact-nonintact family status were variables which produced significant findings that interacted with and produced stronger results than the effect of heavy drinking. In particular, family status turned out to be a uniquely powerful and consistent factor across measures and raters. Simply put, nonintact family status can be a very negative state for children. Although how this relationship impacts is not known, the perception, ease, and frequency of shifting relationships is very troubling in light of these and other findings.

7. Policy Implications

The relatively unresearched topic of this study, the correlational nature of the results, the studies limitations, and the fact that heterogeneous populations are involved temper bold policy conclusions. Yet, the consistency of the findings across measures and sources argues for initiation and implementation of specific research priorities, information dissemination efforts, and pilot programs.

(1) The effect of heavy maternal drinking on the developing child is a cost which needs to be included in the litany of negative outcomes associated with this behaviour. It is a cost which is likely multiplied through successive generations, with offspring more likely to also be abusers and possess comorbid psychopathology. This is but another consequence of inappropriate use of alcohol in a list of negativity which is relatively ignored by society. Prioritized research, intervention, and public awareness campaigns are needed. A Canadian Institute of Health Research dedicated to alcohol and drug studies would provide such awareness and direction.

(2) Specifically, maternal drinking needs to become more of a research and interventions priority. Specifically, prenatal effects need to be separated from the effects of heavy drinking so that maternal parenting responsibilities can also become the legitimate concern that these results would suggest. Also in need of more exploration and public dissemination are the contributing and interactive effects of factors like intact-nonintact family status and their interaction with heavy drinking.

(3) The children of heavy-drinking mothers are a risk group, even if the mother did not drink during pregnancy. Many questions require further investigation; e.g., which maternal parenting behaviours do these heavy-drinking mothers display that increase or decrease the likelihood of problems for her children? Is it an issue of the mother's mental health, and what exactly are the risk characteristics of these at risk children? Sufficient effort, currently lacking, needs to be directed toward answering these questions. This knowledge is necessary, as targeted interventions are typically superior to general efforts. However, before these answers are available, relevant government and social agencies, professionals, and the population at large must be

sensitized to this issue. Information dissemination through publications, circulars, conferences, and supported speaker/consultants needs to be undertaken. Importantly, the relatively recent interest in women's drinking and drug problems needs to be extended to the operative level reflected in differential empirically supported interventions.

(4) Finally, the obvious needs to be restated: parenting, *per se*, essential for a society's survival, deserves attention concomitant with its significance.

Appendix

Questionnaire Items Analyzed by Drinking Group*

Family Characteristics
Children in Household
Age of Mother and Father
Socio Economic Status
Dwelling Ownership
Times Pregnant
Age at First Birth
Family Functioning Score
Current Working Status
Reasons not Employed
Sought Help from Professional
Sought Help from Religion/Community
Social Support Score

Maternal Health
General Health, Chronic Conditions
Food and other Allergies
Asthma and Asthma Attacks
Arthritis or Rheumatism
Back Problems
High Blood Pressure
Migraine Headaches
Bronchitis or Emphysema
Diabetes, Sinusitis, Epilepsy
Heart Disease, Cancer
Ulcers, Acne
Smoke Cigarettes
Depression Score
Drank During Pregnancy

Maternal Ratings of Child, 2-11
Hyperactivity/Inattention
Prosocial Behaviour
Emotional Disorder-Anxiety
Physical Aggression
Separation Anxiety
Positive Interactions
Hostile/Ineffective Parenting
Indirect Aggression
Property Offences

Child's Self-Ratings
Indirect Aggression
Emotional Disorder
Conduct Disorder/Physical Aggression
Hyperactivity/Inattention
Prosociality
Difficult Behaviour
Get along with and Liked by other kids
Worry due to: death of parent, death in family, divorce, move, stay in hospital, foster home, separation, illness, abuse, change, mental health of parent, conflict with parent.
Hours in Activities: sports, art lessons, community groups, video games, television, plays alone
In past year, number of times drank, ran away, skipped school, stayed out late, questioned by police

Teacher's Rating of Child
Parents' School Involvement
(Return Teacher Calls, Attend Meetings)
Thinks School is Important
(Supports Teacher, Helps in Class)
Hyperactivity
Prosociality
Emotionality
Conduct Disorder/Aggression

*Italic print represents composite scores.

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