A MULTI-VARIATE DISCRIMINANT ANALYSIS OF A VARIATION IN THE CONVERGENCE HYPOTHESIS

by

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ABSTRACT

The purpose of this thesis was to test the hypothesis that women and men in equivalent social positions would have similar patterns of alcohol use. This hypothesis is a variation of the convergence hypothesis in alcohol research and is based on Bonger's ([1916] 1969) observation that where the social position of women approaches that of men, differences in the manner of their lives diminish. For the purpose of testing this hypothesis, a status consistent social position was described by the intersection of three socio-economic indicators--educational, occupational and income level--and a sample (N = 996) of status consistent women and men was selected from the National Alcohol and Other Drugs Survey (N = 11,634).

The results of a multi-variate discriminant analysis indicated that status consistent women and men were not substantively divergent in their alcohol use patterns as indicated by the set of situational frequency variables, the set of situational quantity variables, the set of social drinking variables, and the set of individual quantity-frequency variables. However, the results of an interactive discriminant analysis indicated that gender differences in

patterns of alcohol use were substantive when examined by age, marital status, parental status and socio-economic position for each of the four discriminant variable sets.

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Dedication

"It is but just that the person who shared the toil should partake likewise of the honour." (Joan of Arc)

Thus, to
my special friend, Lynda Jo-Ellen Welch;
my mother, Hannelore Bergob;
and my father, Robert Potdor,
is dedicated this thesis.

Chapter One

Theory and Literature Review

Introduction

The problem to be discussed in this thesis is the hypothesis that women and men in equivalent social positions have similar alcohol use patterns and behaviours. This paper will begin with a theory and literature review, followed by a discussion of methodology and data analysis, and conclude with a discussion of the results. This study has limitations, but these are due, in part, to the use of concepts and procedures that are new to alcohol research.

This study is informed by Becker and Kronus (1977), who investigated the nature of gender differences in drinking behaviour within a stratified random sample from the Champaign-Urbana community (N = 385). This study follows their method of analysis within a sample (N = 996) of status consistent women and men selected from the National Alcohol and Other Drugs Survey (N = 11,634). The group variables used by Becker and Kronus (1977) form the basis for this analysis. However, Student status is deleted, and Parental status and Socio-economic position are added as group variables to this research.

Unlike Becker and Kronus (1977), this study is predicated

on Bonger's ([1916] 1969) observation that where the social position of women approaches that of men, differences in the manner of their lives diminish. Following Lenski (1955:405), this study defines a social position as the coexistence of a number of parallel vertical hierarchies which are imperfectly correlated with one another. This imperfect correlation is known as status inconsistency. Individuals with a high level of agreement among their social characteristics are status consistent. The problem of status inconsistency for this research topic will be discussed in the next section.

Chapter One is the theory and literature review and is organized into three sections. The first section will define the problem to be discussed in this thesis. In Section 11, power-control theory will be discussed in terms of social control and social power. Section 111 will discuss literature on alcohol use and the employment status of men and women.

1. Definition of the Problem

The problem to be discussed in this thesis is a variation of the convergence hypothesis based on Bonger's ([1916]1969) observation that where the social position of women approaches that of men, differences in the manner of their lives diminish. The convergence hypothesis in alcohol research claims that changing gender role norms results in convergent

drinking behaviours between women and men (Sadava, 1986; see also Bacon and Jones, 1968; Becker and Kronus, 1977; Berkowitz and Perkins, 1987; Taylor and St. Pierre, 1986; Whitehead and Ferrence, 1976). Critics of this hypothesis (Ferrence, 1980; Fillmore, 1984; Thompson and Wilsnack, 1984) cite epidemiological evidence of constancy in women's drinking over the past 40 years (Schmidt, 1990:180). However, with few exceptions, alcohol studies have ignored stratification research (Pittman, 1962), and assumed that differences between men and women are constant (Chafetz, 1984).

Gender differences in drinking behaviour are in part a function of the subordinate status of women (Knupfer and Room, 1964). Some theorists suggest that as women are increasingly integrated into public production, the material basis of their subordination is diminished (Compton and Mann, 1986; Chafetz, 1989; Coser, 1989; Steil and Turetsky 1987). According to Boyd et al. (1991:413 following Kanter, 1977) the subordinate position of women in the labour force may be changed by the sheer number of women entering the workforce. One of the most significant changes in the status of women in Canadian society in the latter part of this century has been their increased participation in the paid labour force[1] (Krahn and Lowe,

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[1] However, women married to men with high incomes have particularly low participation rates in the Canadian labour force (Armstrong and Armstrong, [1984] 1989:20).

1988). Between 1961 and 1971, female labour force participation increased from 29.1 to 39.9 percent, and by 1981 had increased to 51.8 percent (Krahn and Lowe, 1988:41). By 1986, 55.1 percent of Canadian women were part of the officially defined labour force (Krahn and Lowe, 1988:41).

However, while over half of all Canadian women are employed in the public sphere, almost sixty percent are employed in clerical, sales and service occupations which tend to involve lower status and lower-paying types of work (Krann and Lowe, 1988:46). As a result, the average earnings of women represent only 66% of the full-time wages of men (Statistics Canada, 1990). Since income differences between women and men are greater at each educational and occupational level than those between men at different levels of education and occupation (Marchak, 1981:28) most working women are status inconsistent vis a vis employed men.

In the context of this thesis, status inconsistency is problematic to the accurate comparison of social positions between men and women. The use of a single indicator to represent a social position is imprecise. The use of multiple indicators in an index ignores the way in which women and men differ in both the income returns to education which they derive from jobs, and in the way in which the income and education level typical of an occupation are converted into socio-economic status (Blishen et al., 1987:468; see also

Blishen and Carroll, 1978:352). In the context of this study, the solution to the problem of status inconsistency in social positions is two-fold: The first is to construct a status consistent measure of social position; the second is to delete status inconsistent individuals from the analysis. This will be discussed in detail in Chapter Two.

Before proceeding with the literature review, it is necessary to note that in this thesis, sex and gender are not interchangeable. The former describes the primary sexual characteristics of males and females. Gender is a socially constructed set of expectations and behaviours that differentiate women from men. Where physiology is discussed, the terms 'male' and 'female' are used. The terms 'women' and 'men' are used in the discussion of socially defined interactions and behaviours.

Although alcohol use has a physiological component, the focus of this study is on the social correlates of alcohol use. Kalant (1980:10-1) noted that if gender differences in alcohol use exist despite substantial changes in the social and economic status of women, then explanations might be sought in inherent biological factors that distinguish males from females. In alcohol use, the physiological potential to metabolize ethanol is one of the fundamental biological factors that distinguishes females from males. This metabolic potential is an individual's total fluid volume, calculated

from his or her height, weight, age and sex. Since males have more fluid by volume, they can consume and metabolize a greater amount of alcohol than females. However, when alcohol consumption is standardized by total fluid volume for females and males, the latter not only drink more in absolute terms, they also drink more relative to their body weight[2] (Ferrence, 1980:89 and Johnson, 1982:102). Therefore, explanations for differences in alcohol consumption between men and women are not likely to be found in biological factors (Chomak and Collins, 1987).

Instead, Child et al., (1965a, 1965b in Bacon, 1976:15) argue that differences in drinking customs between women and men tend to conform to the adult gender-differentiation patterns within the society, and in societies where these differences are strongly emphasized, differences in the drinking patterns and behaviours between men and women are more apt to be present. Evidence from a large number of anthropological studies in 113 societies indicates that in 109 societies, both women and men drink; in four societies, only men drink; women drink less than men in 53 societies, but no evidence of alcohol use differences between men and women are

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[2] However, Naegele (1982:71) indicates that when the physiological difference in composite body-water between females and males is taken into consideration, the epidemiological profile of the prevalence of alcoholism among women corresponds closely to that of men: there is almost a one-to-one ratio.

found in 36 societies; the remaining 50 societies reveal inconclusive evidence of differences in drinking patterns between women and men (Bacon, 1976:15 and Moser, 1980:135-6). Thus, the overall evidence strongly suggests that the tendency for men to drink more than women is a frequent but by no means universal occurrence (Bacon, 1976:15; Moser, 1980:135-6).

However, research indicates that women drink less than men in most Western societies [for example, in Australia (Encel et al., 1972), in Canada (Health and Welfare Canada, 1990), in Finland (Makela, 1978), in New Zealand (Martin and Casswell, 1987, 1988) in Norway (Wallace, 1972; Hammer and Vaglum, 1989), in Scotland (Caetano et al., 1982, Cooke and Allan, 1983; Dzialdowski, 1988) and in the United States (Riley and Marden, 1947; Cahalan et al., 1969; Hilton, 1988a; Knupfer, 1989)]. These differences are usually attributed to the simple suggestion that there are different drinking norms for men and women (Bacon, 1976; Wilsnack, 1976). However, although a number of studies have correlated gender roles with alcohol differences between women and men (cf: Beckman, 1975, 1984; Chomak and Collins, 1987; Douglas and Nutter, 1986; Johnson, 1982; Kagle, 1987; Keil, 1978; Parker et al., 1980; Wilsnack and Cheloha, 1987; Wilsnack and Wilsnack, 1978, 1979) there have been few systematic attempts to trace the development and reproduction of gender roles with traditional

gender relations of power[3].

In many Western societies, the historical processes that separated men and women in the production process coincided with the development of gender differentiated expectations that defined appropriate social behaviours for women and men. As Levine (1980 in Kalant, 1980:4) indicates, during the 18th century men and women worked and drank together; but in the 19th century, when men went out to work in industry and women were left in charge of the children and the home, gender roles became much more clearly differentiated than they had before (see also Lisansky, 1957 and Lisansky-Gomberg, 1982). Women began to be perceived and to perceive themselves as the embodiment of virtue and moral standards. Since alcohol use by women was seen as a threat to this new and idealized family life (Levine, 1980 in Kalant, 1980:4), sanctions developed to preserve traditional feminine values and role performance (Thompson and Wilsnack, 1984). Yet sanctions against women's drinking also preserved the existing gender relations of power, in which alcohol use became symbolic of men's higher status relative to women (Morrissey, 1986). Alcohol use by women can thus viewed as a rejection of the traditional gender relations of power (Morrissey, 1986:163) that maintain women's

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[3] As well, Steffensmeier and Allan (1988) recommend that researchers move beyond theories that focus exclusively on gender roles to multi-variate models that more accurately explain population sub-group variations.

subordination in production, reproduction, sexuality and socialization (Mitchell, 1973:101-121 in Morrissey, 1986:160).

If the separation of drinking practices between women and men coincided with the development of a gendered division of labour, then women's increasing participation in the workforce should reveal a concomitant decrease in gender differences in alcohol use. The increasing participation of women in employment and the passing of legislation[4] have, to a considerable extent, removed formal barriers to the participation of women in almost all areas of social life (Compton and Mann, 1986:7). At the same time, there remains the concern that women who work outside the home are vulnerable to increased drinking activities (Shore and Batt, 1991:175). However, the predicted epidemic of women's alcohol abuse, corresponding to changes in status and roles, has not materialized (Shore and Batt, 1991:175). Indeed, multiple roles have not been correlated with increased alcohol consumption, but predictive of decreased consumption (Shore and Batt, 1991:175). However, Fowlkes (1987:7) argues that the quality of women's participation in the workforce should not be confused with equality of roles between men and women.

Storm and Cutler (1975:920) suggest that consumption of

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[4] Section 15 of the Canadian Charter of Rights and Freedoms became law in April, 1985 and established a constitutional entitlement to full equality for women in law, as well as in the effects of law (Krahn and Lowe, 1988:144).

alcohol will increase or decrease with changes in status on major demographic variables, according to whether those changes imply an increase or decrease in the supply of resources required for drinking activities. They further suggest that consumption during a period in which one demographic status is occupied will be relatively independent of consumption during any prior or subsequent periods in a different demographic status. Thus, changes in alcohol consumption will result primarily from the resource and activity patterns linked to the characteristics of the social environment implied by or associated with the new status and their compatibility with alcohol consumption (Storm and Cutler, 1975:920). Women's increased participation in the paid labour force has precipitated a decline in the separation of the consumption and production spheres (Coser, 1987), but gender differences in alcohol use have been constant across 40 years of epidemiological research (Schmidt et al., 1990). Morrissey (1986:175) argues that women's drinking patterns have remained unchanged because gender relations of power, and the symbolic link between access to alcohol and access to power, have remained unchanged. The following section will discuss power-control theory as a possible theoretical framework in which to examine the factors that influence the continuance of gender differences in alcohol use despite women's increased participation in the paid labour force.

ll. Power-Control Theory

Power-control theory was originally developed by Hagan, Gillis and Simpson (1979) to account for gender and social class differences in common forms of adolescent delinquency. Power-control theory was not originally conceptualized to account for gender and social class differences in alcohol use, nor has it been empirically tested with an adult sample (see however Sacco, 1990). However, power-control theory does provide a theoretical model to account for gender differences in social behaviour that is applicable to this research problem. In particular, power-control theory traces differences in social behaviour between women and men to the development of stratified processes of social control consistent with the development of a gendered division of labour.

i. Gender and Social Control

Power-control theory is a synthesis of micro-structural theories of social control that focus on relations of dominance established in the family, and macro-structural theories that centre on relations of dominance that derive from control over the means of production (Hagan et al., 1985:1154). Following Weber (1947 in Hagan, 1987:791),

power-control theory recognizes the importance of the separation of the workplace from the home in the rationalization of an industrial capitalist economy. Two distinct spheres resulted from this separation: the first was populated by men and centred around labour power, and the second was populated by women responsible for domestic labour and the social reproduction of the gender division of these separate spheres (Hagan et al., 1987:791). The first part of this discussion of power-control theory will focus on the role of the family as the social agency responsible for primary socialization and the reproduction of gender differences across generations.

Power-control theory traces the reproduction of social control to the family as the social agency responsible for primary socialization. Mothers more than fathers are assigned responsibility for controlling the offspring, and daughters more than sons are subjected to these controls (Sacco, 1990:495; see also Devor, 1989; Mackie, 1983, 1987, 1991). Devor (1989:34) indicates that both parents tend to encourage independence in their sons and dependence in their daughters. Sons are rewarded for exploring and taking risks, while daughters are encouraged to stay close to their parents (Devor, 1989:34; see also Hagan, et al., 1985:1156; Mackie, 1983). Kanter (1974 in Hagan et al., 1985:1156) refers to this as the intimate oppression of informal control, which is

central to the reproduction of order.

Socialization prepares women for domestic labour by encouraging their passivity, while men are socialized in anticipation of their active role in the public realm of production[5] (Sacco, 1990). The result is a differential effect upon offsprings' attitudes towards risk-taking (Sacco, 1990:495; Hagan et al., 1990; Devor, 1989). Gender differences in social behaviour are thereby intimately linked to the way in which social control is structured in the family (Hagan et al., 1985; see also Devor, 1989; Sacco, 1990).

However, more germane to this discussion is the affect of social controls outside the familial context. Primary socialization is not deterministic and the effect of social controls are mediated by context. Thus, power-control theory simultaneously considers both formal and informal structures of social control and their linkages into the gender-based stratification system (Hagan et al., 1979:27). Informal and formal social controls are inversely related (Black, 1979) and shift from the former to the latter as the behaviours involved become more public and diverse in character (Hagan et al., 1979). The division of labour has primarily situated women in the private sphere, where informal social controls are enacted

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[5] However, Berger (1989:387) indicates that daughters in egalitarian families are encouraged to take risks in order to prepare themselves for non-traditional occupational roles.

through the family, friends and peers. Men are primarily situated in the public sphere, where state agencies and representatives mediate social behaviour through formal social controls.

Social controls tend to extend beyond these primary spheres of influence, and individuals themselves may be deterred from some forms of behaviour specifically by one form of social control over another. Hagan et al. (1990) recommends that by conceptualizing the private sphere and informal social controls as demarcating one end of a continuum, and the public sphere and formal social controls as demarcating the other end, the tenacious problem of locating the point of departure from one form of social control to the other is minimized.

While inclinations to deviate from social constraint are ubiquitous (see Hirshi, 1969), the presence of power and the absence of control determines the forms the deviations take and the rate of their occurrence (Hagan, 1990:138). Power-control theory suggests that an implicit patriarchal social contract, built upon social power differences between women and men, structures contemporary gender relations (Hagan et al., 1985). Differences in social power between men and women, and the effect upon differences in alcohol use will be discussed in the next section.

ii. Gender and Social Power

The previous section concentrated on the discussion of gender-based forms of social control. Power-control theory considers those conditions under which individuals are free to deviate from social controls. Freedom to deviate is directly related to gender and class position. Men are generally freer to deviate from social norms than are women, and individuals in higher social classes also enjoy greater freedom from social control than those in the lower social classes (Hagan et al., 1985; see also Chafetz, 1984, 1989; Devor, 1989; Mackie, 1983, 1987, 1991). For example, while alcohol use by women elicits negative reactions (Marsh et al., 1982), heavy drinking by men is often tolerated or even encouraged (Sadava, 1986:72) in specific circumstances (eg: "stag" parties).

The mediating factor between gender, social class and freedom from constraint is power. Power is linked to resources that are manipulated to influence the course of interaction with others (Cohen, 1987:287). Men have greater access to scarce and valued resources (Lengermann and Niebrugge-Brantley, 1988:295) and thus obtain greater power than women. In the Weberian schema, power is the ability to realize an action even in the face of resistance (Theberge, 1990). Feminist critiques insist the continuing emphasis on force as the basis of power constitutes a particularly

masculine approach (Duffy, 1986).

A feminist reconceptualization turns attention away from force and domination to a consideration of power as a resource that is enabling (Theberge, 1990). All forms of dependence offer some resources whereby those who are subordinate can influence the activities of their superiors and amongst themselves (Giddens, 1984). Women who gain access to resources through their employment in the public sphere can mediate some of the structural constraints that they encounter. Gender can be conceptualized as one form of structural constraint in which the limits that are imposed upon women's actions differ from those imposed upon men. However, these limits can be mediated or redefined through specific forms of individual or collective agency. The movement of women's labour outside the home has predicated the redefinition of some of the traditional limits of women's labour. However, structural constraints in the form of gatekeeper roles, that are occupied by men to ensure their privileged access to scare and valued resources, limit women's access to positions where significant changes can be implemented for women's empowerment in the public sphere. Gatekeeper roles tend to remain male-occupied because women collectively lack the resources to seriously challenge this form of structural constraint (Chafetz, 1989:137).

However, not all women are resource-poor. Money,

education and diverse social networks are available and have implications for freedom from structural constraints. The nonconforming behaviour of the rich is less likely to be sanctioned and more likely to be admired than the unconventional behaviour of the poor (Thoits, 1987:18). Education provides access to money and to social networks. The more segregated and differentiated one's social networks, the more likely one is to escape sanctions and find support for alternate patterns of behaviour (Stryker and Statham, 1983; Thoits, 1987). Educated and employed women have a higher percentage of alcoholism, due in part to their exposure to cultural contexts or interpersonal situations in which drinking is the norm (Schuckit and Morrissey, 1976). Highly educated women, who perceive that more than half or all of their peers drank, are more likely to drink than women identifying fewer than half or none of their peers as drinkers (Keil, 1979). As well, higher-status groups seem less likely to draw sharp distinctions between behaviour identified with men and behaviour identified with women (Gagnon and Simon, 1973; see also Chafetz, 1984; Knupfer and Room, 1964; Mackie, 1983). As a result, higher-status women enjoy greater latitude in choosing how to act in a variety of social situations. Storm and Cutler (1975:918) suggest that resources and patterns of activity mediate the relationships between demographic variables and alcohol consumption, and the

less the generalized cost of resources, and the greater the disposable resources left free by alternatives, the greater the consumption of alcohol. Thus, it is possible for women and men in equivalent social positions to have similar patterns of alcohol use. The following section will examine gender differences and similarities in the patterns of alcohol use between men and women.

lll. Gender, Employment and Alcohol Use

Many socio-demographic variables have shown significant correlates with alcohol use for women and men. However, Room (1972; see also Room, 1977) has shown that differences in the measurement of socio-demographic variables can affect results even within the same data-set. This is especially problematic for significant correlates of alcohol use found with measures of socio-economic status, since there has been no consistency in the measure of this variable across studies. Therefore, this section will discuss alcohol use differences and similarities between men and women by their employment status.

The myth of the hidden alcoholic housewife has no foundation in the literature reviewed. Wilsnack et al., (1984/5 in Kagle, 1987) found that women with drinking problems were more likely to be working part-time or seeking employment, and Mulford (1977:1627) found employed women were

over-represented and housewives under-represented among patients seeking treatment for alcoholism. Employment status significantly predicted the frequency of consumption in women, and the frequency of drinking events was higher among employed women than among those who were long-term unemployed (Parker et al., 1980:47). Parker et al., (1980:47) also noted that the frequency of drinking events and volume of consumption were higher among short-term unemployed women than among long-term unemployed women.

Layne and Whitehead (1985) and Whitehead and Layne (1987) examined employment and alcohol use among samples of men (N=3430) and women (N=3383) between the ages of 15 and 29 drawn from the 1981 Canada Fitness Survey (N=22,000). Among unemployed men, 22% were heavy drinkers, while 16% of the employed men were heavy drinkers, and only 11% of the full-time students reported heavy drinking (Layne and Whitehead, 1985:539). By comparison, 21% of unemployed women were heavy drinkers, 17% of the employed women were heavy drinkers, and 11% of the full-time students reported heavy drinking (Whitehead and Layne, 1987:172). Younger employed women reported higher rates of heavy drinking than among young employed men (29% for women versus 17% for men ages 15-17 and 24% for women versus 21% for men), and 15% of the women who worked in the home reported heavy drinking (Whitehead and Layne, 1987:172).

In interviews with 506 women and 487 men in Durham (Toronto) Liban and Smart (1982:55) found that drinking problems were no more hidden in women than in men, but being single and being employed were far stronger predictors of problems for women, while low socio-economic status was a much stronger predictor for men. Working men reported more problems than working women, but employed women had three times as many problems as housewives (Liban and Smart, 1982:54). However, comparisons between women and men by employment status showed that a larger proportion of men reported drinking problems irrespective of their employment status (Liban and Smart, 1982:53).

Johnson (1982:107) argues that employment has a different relation to drinking for women that it does for men. Unemployment has been labelled one of the greatest crises men can face (Brenton, 1966), while employment for women may place them in difficult situations involving pay discrimination, harassment, role stress and unpleasant low paying jobs (Johnson, 1982:107). Yet Johnson (1982:112) found the most important predictor for heavier drinking and problem drinking among women was the interaction between being married and being employed. Married women who are employed have significantly higher rates of both problem and heavier drinking than either single working women or women not in the workforce (Johnson, 1982:113). However, no similar

relationship occurs for men.

Problem drinking for employed men was associated with low education and low job seniority, and among the men who are divorced, separated and never married (Volicier, et al., 1981:182). However, contrary to Johnson (1982), Volicier et al. (1981:113) found that there was no association between problem drinking for women and marital status, low education, low job security, or income. Problem drinking for women was consistently associated with more children and the number of children in the home. Volicier et al. (1981:184-5) found that there was a consistent positive association between problem drinking as measured by several indicators and number of children and number of children at home, for women but not for men, which is not explained by differences in age, education, marital status or income.

Stress was an often cited explanation for the correlation between women's employment and alcohol use (cf. Allan and Cooke, 1985; Cooke and Allan, 1984; Ensminger et al., 1982; Filstead, 1984; Koch-Hattem and Denman, 1987; Linsky et al., 1985; Morrissey and Schuckit, 1978; Neff and Huisani, 1982). The stress hypothesis argues that the increasing consumption of alcohol among women is due to the changing nature of society and women's roles within it (Hammer and Vaglum, 1989:768). For instance, women may be exposed to greater stress as a result of conflicting roles between spouse and

employee (Johnson, 1982) or mother and worker (Volicier et al., 1981). Hammer and Vaglum (1989:773) indicate that none of the stress factors they examined had any significant influence on the alcohol consumption of employed women. This was similar to the results found by Shore and Batt (1991:175) who revealed that among business and professional women, adding work outside the home to in-home activities did not precipitate an increase in stress or stress-induced drinking. However, contrary to Volicier et al.'s (1981) findings, Hammer and Vaglum (1989:773) found that full-time employed women, with additional child-care responsibilities, consumed significantly less alcohol than those without children, when controlling for age, income and marital status.

An unexpected finding among Hammer and Vaglum's (1989:773) results was that 48% of the variance in married women's own alcohol consumption was explained by their husband's alcohol consumption. However, Hammer and Vaglum (1989:773) also found that women's employment was independent of her spouse's alcohol consumption and her employment had no significant effect on her alcohol consumption when controlling for her partner's alcohol consumption. Their results indicated that women's alcohol consumption was more specifically related to accessability variables with a close relationship to lifestyle, rather than to a general accessability to alcohol.

As well, Hammer and Vaglum (1989:773-5) argued that the results did not support the hypothesis that increased employment activity amongst women was related to increased alcohol consumption, nor did their results support the hypothesis that alcohol was generally used as a coping strategy by women under stressful conditions. However, there was evidence that women in male dominated occupations consumed more alcohol than women in traditional female occupations (Hammer and Vaglum, 1989:774; see also Wilsnack et al., 1986) which will be discussed in the following section.

Keil (1978) suggested that as women moved into social situations and roles in which they were expected to be drinkers the prevalence of alcohol use among women would increase. Research has found that women in non-traditional role orientation (such as employment in male dominated occupations) were found to have higher rates of drinking and drinking problems (Schmidt et al., 1990:183). Yet research also found little support for the stress hypothesis (see above). Instead, Clarke et al., (1990:1611) revealed that previous research (Plant, 1981; see also Trice and Sonnenstuhl, 1990) recognized several occupational factors as major influences in the development of alcohol problems. Clark et al. (1990) tested six of the eight risk factors previously identified as common to occupations associated with high rates of alcoholism. The factors studied were

availability of alcohol at work, social pressure to drink from colleagues, separation from family due to work commitments, lack of supervision, collusion by colleagues and stresses and strains (Clarke et al., 1990:1611). Clarke et al. (1990:1613) found that while the expected gender differences in quantity-frequency, severity of dependence and duration of heavy drinking were evident, almost every variable which was expected to affect drinking habits (cf. Plant, 1981 and Trice and Sonnenstuhl, 1990) proved to be inert for both women and men.

The results of the literature reviewed in this section reveal some important considerations for understanding the linkage between women's employment in the paid labour force and their alcohol use patterns and behaviours. The concern that the stress of multiple roles would lead to increased alcohol consumption among women was not supported. However, it was apparent that women who worked outside the home consumed more alcohol than women who worked in the home. This provides some support for Storm and Cutler's (1975) suggestion that alcohol consumption will increase or decrease with changes in status on major demographic variables (such as occupational and income status), according to whether those changes imply an increase or decrease in the supply of resources required for drinking activities.

However, women who are employed outside the home and have

children drink less alcohol than employed women without children. For women who work in the home, the number of children in the home is positively associated with increased alcohol consumption. This may be related to the lack of alternative role options available to these women. The effect of children on women's alcohol use requires more research in addition to the impact of women's participation in the paid labour force.

The evidence discussed herein strongly suggests that women's employment outside the home offers alternative role options, including caring for their children, that may displace alcohol use behaviours. Child-care also seems to have a positive impact on reducing alcohol use among women employed outside the home, but increases alcohol consumption for women working in the home. The results also suggest that women who are employed in the paid labour force and have no children are most likely to convert their new found status and resources into increased alcohol use. As a result, their drinking patterns and behaviours tend to resemble those of men. Therefore, there is some evidence that men and women in equivalent social positions have similar alcohol use patterns and behaviours.

However, the strong influence of men's alcohol use upon their partners has an important theoretical implication. Although Coser (1989) has argued that women who work outside

the home gain power vis a vis men in the home, Hammer and Vaglum (1989) found that regardless of employment status, women's alcohol use is best predicted by their husbands' alcohol use. This is an indication that women's drinking patterns remain unchanged because gender relations of power remain unchanged (Morrissey, 1986). It is evident in the unpaid labour (regardless of their employment status) that women perform in the home, and the underpaid labour (regardless of their educational or occupational status) that women perform outside the home that gender relations of power have remained unaffected by women's participation in the paid labour force.

Chapter Two

Source of Data and Method of Analysis

Introduction

This chapter will discuss the National Alcohol and Other Drugs Survey (NADS), the variables and their operational definitions, and the method of analyzing the data. The method of analysis and the variables selected for this study are predicated upon previous research on gender differences in alcohol use. In particular, this study is informed by Becker and Kronus (1977) for method of analysis, by Johnson (1982; see also Knupfer and Room, 1964; Schuckit and Morrissey, 1976) for group variable selection, and by Clark (1985) and Harford (1978) for the selection of the situational variables. Additional variables are chosen to account for the social aspects of alcohol consumption (see Cahalan et al., 1969). Since the categories of situational and social drinking are not mutually exclusive nor exhaustive (Clark, 1985), individual indicators of quantity and frequency of alcohol use are also included.

The impetus for this study is Becker and Kronus' (1977) examination of gender differences in patterns of alcohol use. Becker and Kronus (1977:482) used multi-variate discriminant

analysis to pinpoint which independent drinking variables differentiated most powerfully between the sexes, as well as to measure the importance of sex differences in drinking relative to age, student status, and marital status group differences.

In this study, SEX, AGE, and MARITAL STATUS are retained as group variables and STUDENT STATUS deleted[1] as a group variable. SOCIO-ECONOMIC POSITION is added as a group variable based on findings from Knupfer and Room (1964) and Schuckit and Morrissey (1976). PARENTAL STATUS is added to this analysis based on the finding that there is a consistent positive association between drinking behaviour and children in the home (for women, but not for men), which has not been explained by differences in age, education, marital status or income (Volicier et al., 1981:184).

Chapter Two will be organized into six sections. Section 1 will describe the National Alcohol and Other Drugs Survey from Health and Welfare Canada (1989). The next section will outline the selection of a sample of status-consistent current drinkers for analysis. In Section lll, the group variables will be discussed. The discriminating independent variables will be examined in Section lV. The standardization of the

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[1] Crowley (1991:10) indicates that conclusions based on in-school samples may not generalize well to non-school populations and should be tested using more representative databases.

quantity variables by Total Body Water for males and females will be discussed in Section V. The method of statistical analysis will be the focus of Section Vl.

1. National Alcohol and Other Drugs Survey

The National Alcohol and Other Drugs Survey (NADS) was commissioned by the Department of National Health and Welfare Canada through the Special Surveys branch of Statistics Canada. NADS is a stratified, multi-stage survey of households in ten Canadian provinces conducted in March, 1989. The Northwest Territories and the Yukon were excluded from the survey. Through the use of random digit-dialling methods, most Canadian households were equally likely to be sampled (dwellings with more than 15 persons, institutions and prisons were excluded). With an overall response rate of 78.7%, a sample size of 11,634 respondents, 15 years of age and over was obtained (Health and Welfare Canada, 1990). Statistics Canada provided weighting to account for households without phones, persons who did not respond, multiple telephones in households, the number of persons in the household, census projection counts for the provinces, and the age and sex of the population (Health and Welfare Canada, 1990:1).

The survey (NADS) comprised 95 questions that obtained 545 individual and derived variables. The survey focused on

the quantity and frequency of alcohol use, and included socio-economic, demographic, occupational, ethnic and household data. The survey respondents were 45.5% men (N=5291) and 54.5% women (N=6343), and were categorized as current drinkers (78%), former drinkers (16%) and life-time abstainers (7%) (Health and Welfare Canada, 1990:3). Health and Welfare Canada (1990:3) describes current drinkers as those Canadians who consumed at least one drink in the 12 months preceding the survey. A "drink", as defined by Health and Welfare Canada (1990:3), is one bottle of beer or glass of draft; or one glass of wine or wine cooler; or one straight or mixed drink with 44 ml. of hard liquor. These definitions are used throughout the thesis unless otherwise stated.

A major concern of alcohol and drug surveys is the accuracy of self-reported data (Smart and Jarvis, 1981). Health and Welfare (1990) adopted standard questions which had been proven to be effective in previous research. In addition, assurances of anonymity and confidentiality were given respondents to increase response rates and improve the likelihood of truthful responses to sensitive questions. Health and Welfare (1990:2) indicated that confidence in the data was bolstered by the high level of response to most questions. As well, research has shown that self-reports of drinking to have considerable reliability (Fitzgerald and Mulford, 1978), and under-estimation of the quantity and

frequency of alcohol use should not impair intergroup comparisons (Smart and Jarvis, 1981).

However, Dunham (1983:487) indicates that under-estimation of alcohol use is affected by a social-desirability bias as well as a memory bias that does not seem to affect over-estimations of alcohol use. Since women's drinking is more strongly sanctioned against than men's drinking (Marsh et al., 1982), women may tend to under-report their alcohol use. However, Ferrence (1980:72 see also Garrett and Bahr, 1974) reveals that adult women may be much less likely than men to underreport their consumption of alcohol. However, since the extent and effect of under-reporting is unknown (Alanko, 1984:213), comparisons of drinking behaviour between women and men need to look for a larger effect size to determine whether differences in their alcohol use are substantive. Knupfer (1987:584) recommends that researchers consider sub-group differences of 30% or 40% in the characteristic under investigation.

11. Selection of Sample

Since this thesis examines differences in alcohol use, the first step in obtaining a sample is the deletion of former drinkers (N=2034) and life-long abstainers (N=840) from the selection. Unlike the behavioral definition of drinkers,

abstainers are frequently defined only by the absence of certain kinds of behaviour (Knupfer and Room, 1970:108). Goldman and Najman (1984:309) indicate that abstention is not simply the absence of drinking behaviour, but involves behaviourial dimensions which emerge from the positive refusal to consume alcohol. Since the decision to abstain or to drink can be seen as a different type of process than how much a drinker might habitually consume, the model that best predicts abstention differs from that which best predicts consumption (Armour et al., 1976). Therefore, Armour et al. (1976) recommend that abstention be studied separately from amount of consumption in its relationship to socio-cultural indicators.

The purpose of this thesis is to test a variation of the convergence hypothesis. Since the conditions required for this are not present, it is necessary to develop an equivalent situation. According to Bonger ([1916] 1969), where the social position of women approaches that of men, differences in the manner of their lives diminish (see also Hagan, 1979; Knupfer and Room, 1964; Chafetz, 1984; Coser, 1989). For the purposes of this study, a social position is described by the intersection of three socio-economic indicators--educational, occupational and income level. The three socio-economic positions are constructed as follows: A Low socio-economic position is defined by an educational level of high school or less, and a blue-collar occupation, and an annual income in

1988 dollars of less than $20,000 per year; a Medium socio-economic position is defined by an educational level of some post-secondary education, and a white-collar occupation, and an annual income in 1988 dollars greater than or equal to $20,000 and less than $39,999 per year; a High socio-economic position is defined by an educational level of post-secondary or more, and a professional/managerial occupation, and an annual income in 1988 dollars greater than or equal to $40,000 per year. The use of three indicators to locate a socio-economic position minimizes status inconsistency since the level of agreement between the socio-economic status characteristics is pre-determined. Only those cases where the social position of women approaches that of men are selected for analysis. The demographic characteristics of the sample of status consistent current drinkers (N=996) are found in Table 1.

Status inconsistency was first conceptualized in Hughes' (1944) classic discussion of the Dilemmas and Contradictions of Status. Hughes (1944) described status inconsistency as the combination of two or more discrepant statuses in which unpleasant or frustrating social experiences are encountered by individuals whose ascribed status is recognized over their achieved statuses. Hughes (1944) cites the example of the Black physician who suffers conflict and stress from the failure of others to recognize his or her achieved statuses

Table 1: Demographic Characteristics of the Drinking Subsample of Status Consistent Individuals, by Sex.

	Women	Men	Total
Age:			
15-29	32.4 (82)	31.9 (237)	32.0 (319)
30 and over	67.6 (171)	68.1 (506)	68.0 (677)
Marital Status:*			
Single	41.5 (105)	33.8 (251)	35.7 (356)
Married**	58.5 (148)	66.2 (492)	64.3 (640)
Children under 15 years of age in Home:			
No	56.9 (144)	60.6 (450)	59.6 (594)
Yes	43.1 (109)	39.4 (293)	40.4 (402)
Socio-economic Position:*			
Low	40.7 (103)	69.2 (514)	61.9 (617)
Medium	33.6 (85)	6.9 (51)	13.7 (136)
High	25.7 (65)	24.0 (178)	24.4 (243)

(numbers in parentheses are values for each category)

* chi-square $p < .05$

** includes living with a partner

(education and occupation) while emphasizing her or his ascribed status (race). Thus, status inconsistency was viewed as a potentially valuable social-psychological dimension in sociological analysis as a mediating effect in the development of stress and frustration brought on by conflict between status characteristics. However, Blocker and Riedesel (1978) indicate that the average person is not really bothered by the inconsistencies in status which bother sociologists. While the social-psychological effects of status inconsistency have been found to be minimal (Blocker and Riedesel, 1978), the concept of status inconsistency in the measurement of social positions remains a valid concern.

The method of describing a social position as status consistent in this thesis has limitations. The first limitation is related to the observation that employed women tend to be status inconsistent vis a vis employed men. The elimination of status inconsistent 'cases' from analysis will therefore predominantly eliminate women from the analysis. However, this also reflects the social and economic reality that women are seldom rewarded in a manner equal to that of men. Other methods of measuring social position often ignore these gender based inequalities in socio-economic rewards[2].

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[2] See Blishen et al. (1987) for a discussion of the problems associated with the measurement of socio-economic status.

Since the purpose of this research is to test the hypothesis that women and men in similar social positions do not differ in their social behaviours, it is necessary to minimize status inconsistency in the analysis.

A limitation in the measure itself is the subjective selection of the categories used to construct the social positions. The categories were derived by Statistics Canada from the NADS data-set and chosen by this researcher for their convenience and simplicity. The categories are easily combined into an indicator of status consistency in a social position. While the categories are mutually exclusive, they tend to be non-specific measures of education, occupation and income and the range of values within the categories lessen the accuracy of describing a specific social position. However, the use of three indicators to locate a status consistent social position tends to offset this inaccuracy.

The final limitation in this form of measure is the assumption that the categories used to locate a social position are consistent with the description. For example, there are blue collar workers who earn greater than $20,000 per year and have an educational level higher than high school. There are, as well, white collar managers with less than post-secondary education and who earn less than $40,000 per year. However, the purpose of this study is not to construct the most accurate measure of social position.

Instead, it is to provide a method whereby men and women with similar educational, occupational and income levels can be described in one measure of social position that reduces the problem of status inconsistency. The method described above identifies a 'layer' of cases in which the three indicators intersect and, according to the proposition discussed in this study, it is within these social positions that differences in the alcohol use patterns and behaviours of women and men will diminish.

111. Group Variables

As previously indicated, group variables are selected in consideration of previous research. In all, nine different group variables are separately treated as dependent variables in the discriminant analysis. These variables and their categories include: (1) SEX (females / males); (2) AGE (15 - 29 / 30 and over); (3) MARITAL STATUS (Single / Married or Living with a Partner); (4) PARENTAL STATUS (KIDS) (No Children under 15 in the Home / Children under 15 in the Home); (5) SOCIO-ECONOMIC POSITION (Low / Medium / High); and the interaction effects variables, (6) SEXAGE (Women 15 - 29, Men 15 - 29, Women 30 and over, Men 30 and over); (7) SEXMAR (Single Women, Single Men, Married Women, Married Men); (8) SEXKIDS (Non-parental Women, Non-parental Men, Parental Women,

Parental Men); (9) SEXSES (Low SES Women, Low SES Men, Medium SES Women, Medium SES Men, High SES Women, High SES Men).

The product-moment correlations between the demographic and interactive group variables are found in Table 2. The large zero-order correlations between MARITAL STATUS (MAR) and PARENTAL STATUS (KIDS) (.41) and between SEXMAR and SEXKIDS (.51) reflect the societal expectation and fact that parenthood is generally accompanied by marriage. Table 3 illuminates this relationship further when the product-moment correlations are calculated by sex. In this instance, marriage and children are highly correlated for men (.44), but less so for women (.33). However, marriage and children are negatively correlated with Socio-economic position for women (-.41 and -.36 respectively). This is interesting in light of the fact that the sample selected for analysis only includes individuals employed full-time in the twelve months preceding the survey.

Following Becker and Kronus (1977), the nominal level variables--SEX, MARITAL STATUS, and PARENTAL STATUS--are converted to interval level variables (see Labovitz, 1970a; Cohen and Cohen, 1983) by dummy coding for analysis. As well, AGE[3] is dummy coded for this analysis. Socio-economic position is coded from 1 (low) to 3 (high). The interactive

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[3] Following Becker and Kronus (1977) age is dichotomized into two groups -- Under 30 (age 15 - 29) and Over 30.

Table 2: Product-Moment Correlations between Demographic Variables and Interaction Terms.

	AGE	Marital Status	Parental Status	SES	SEXAGE	SEXMAR	SEXKIDS	SEXSES
SEX	0.00	0.07	-0.03	-0.15*	0.43*	0.47*	0.38*	0.10**
AGE		0.20*	0.07	0.22*	0.91*	0.18*	0.07	0.23*
MAR			0.41*	-0.21*	0.21*	0.92*	0.41*	-0.19*
KIDS				-0.11*	0.05	0.35*	0.91*	-0.12*
SES					0.14*	-0.25*	-0.16*	0.97*
SEXAGE						0.36*	0.22*	0.25*
SEXMAR							0.51*	-0.13*
SEXKIDS								-0.07*

* $p < .01$
** $p < .001$

Table 3: Product-moment Correlations by Sex

Women (N=243)

	AGE	Marital Status	Parental Status	SES
AGE	1.00	0.07	-0.01	0.13
Mar. Stat.		1.00	0.33	-0.41
Par. Stat.			1.00	-0.36
SES				1.00

Men (N=753)

	AGE	Marital Status	Parental Status	SES
AGE	1.00	0.25	0.10	0.26
Mar. Stat.		1.00	0.44	-0.13
Par. Stat.			1.00	-0.04
SES				1.00

group variables (SEXAGE, SEXMAR, SEXKIDS) are coded from 1 to 4 (odd numbers represent women; even numbers represent men). SEXSES is coded from 1 to 6 (odd numbers represent 'low' to 'high' for women; even numbers represent 'low' to 'high' for men). As a group, men are assigned the higher number in each category to reflect their higher social status in general.

lV. Discriminating Variables and Variable Sets

The independent drinking variables (N=76) used by Becker and Kronus (1977) were categorized into two groups--motivational and quantity-frequency. For the actual analysis, these variables were grouped into five categories: (1) positive motives; (2) negative motives; (3) situational frequency; (4) all frequency; and (5) quantity-frequency. However, for the purposes of this study, only drinking behaviour variables (N=36) are selected and categorized as follows: (1) situational frequency; (2) situational quantity; (3) social drinking; and (4) quantity-frequency. Quantity and frequency variables are reported separately to avoid quantity-frequency error[4]. In addition, all quantity variables are standardized by Total Body Water for males and

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[4] A 'quantity-frequency error' is the failure of a combined quantity-frequency measure to discriminate between a high frequency of low alcohol consumption and a low frequency of high alcohol consumption.

females. This is discussed further in Section V of this chapter.

The selection of drinking setting and activities follows Clark (1985) and Harford (1978). Harford (1978: see also Harford, 1979, 1980; Harford et al., 1980) argued that alcohol intake could be related to the kinds of social activities attended by respondents, and the frequency of attendance. Harford (1978 ff.) found that while men drank more than women in various settings, there was a great deal of similarity in the patterns of drinking for women and men across the settings. Clark (1985:67) further argued that the frequency of going to various drinking situations interacts with individual propensity to drink and with situational constraints to produce greater or lessor amounts of total alcohol intake. Based on these findings, the frequency and quantity of alcohol use between women and men in various situations will be examined in this study.

The NADS survey provides seven drinking setting and four related activities that will be described below. The settings and activities do not exhaust the possible locations or activities in which alcohol is used, nor are the categories to be considered mutually exclusive (Clark, 1985). Therefore, one individual may potentially drink in any one, or all of the settings or activities described. However, since Cahalan et al. (1969) have indicated that "who drinks what where" is

important, the treatment of the settings and activities on an individual basis is justified (Clark, 1985).

Information regarding Situational drinking was obtained by asking respondents: "How often during the past 12 months did you participate in the following activities?" (see appendix A, question 25, part A). Situational frequency variables were then obtained by asking respondents: "When you [participated in the following activities] how often did you drink?" (question 25, part B). Situational quantity variables were obtained by asking respondents: "How many drinks do you usually have?" (question 25, part C). Statistics Canada converted this information into quantity and frequency variables (see appendix B).

Statistics Canada also collected data on alcohol use for four special activities and occasions. In response to the following question: "How many times during the past 12 months did you participate in the following special occasions or seasonal activities?" (appendix A, question 26), respondents were asked: "When you [do a special occasion or seasonal activity] how often do you drink?" (appendix A, question 26, part B); and: "How many drinks do you usually have?" (appendix A, question 26, part C). Responses were transformed into specific and derived variables by Statistics Canada (see appendix B).

Social drinking is comprised of the responses to the

following question asked of respondents: "During the past 12 months, how often did you drink ...?" (appendix A, question 27); and the responses to: "Thinking about the past 12 months, how often has your spouse/partner had a drink?" (appendix A, question 49); and: "On the days when he/she drank, how many drinks did he/she have?" (appendix A, question 50). These responses were transformed into specific and derived variables by Statistics Canada (see appendix B).

Quantity and frequency variables dealt with the actual drinking behaviour of respondents exclusive of situational, special occasion and social drinking. The frequency variables included: Number of Times had a drink last year (question 19), Number of Times had 5 or more drinks at once (question 21), Highest number of drinks at once (question 22), and Number of days in week drank (question 24). Quantity variables included: Amount drank last year (question 20), Amount drank last week (question 24), Amount drank per day last week (question 24). These variables are also included to provide a more recent portrait of drinking behaviour among respondents. As Little et al. (1977, in Dunham, 1983:485) indicate, the longer the required period of recall, the greater the error in measuring consumption.

Examination of the frequency distributions for the quantity and frequency variables reveal that they are highly skewed. Therefore, all quantity and frequency variables are

logarithmically transformed by the following: new variable = Log10 (original variable + 1). The addition of a constant ensures that positive values of less than one are reported as positive integers.

V. Standardization of Quantity Variables

The final process in preparation for the data analysis is the standardization of the quantity variables by respondents' height, weight, age and sex (Total Body Water). The following formulae provided by Statistics Canada indicate the calculation of total body water for each respondent by sex: Total Body Water (kg.): Females = -2.097 + 0.1069 height (cm) + 0.2466 weight (kg). Males = 2.477 - 0.09516 age (years) + 0.1074 height (cm) + 0.3362 weight (kg.). The constant for females is negative because of the overall smaller body mass of females compared to males. Age is calculated for males to account for changes in the proportion of muscle to fat with age. The coefficient for height is slightly larger for males than for females since women are usually somewhat shorter than men. The coefficients for weight differ between males and females to account for sex differences in fat to muscle proportions. A smaller proportion of the female body mass is comprised by muscle tissue. Muscle tissue is mainly water and dilutes the alcohol present in the bloodstream. Therefore,

comparisons that do not control for the amount of body fluid may exaggerate differences and miss similarities that may be theoretically and programmatically relevant (Whitehead and Layne, 1987:174).

VI. Method of Statistical Analysis

As previously mentioned, the method of statistical analysis in this research is informed by Becker and Kronus (1977), who recommended the use of multi-variate discriminant analysis for future research on gender differences in alcohol use. Since the basic desire of this research is to statistically differentiate the patterns of alcohol use between women and men, discriminant analysis will be used. This method of testing the convergence hypothesis is also superior to conventional difference-of-means tests. As a special form of multiple-regression analysis, multi-variate discriminant analysis controls for the inter-correlations among the variables. This is especially important in alcohol research where most drinking variables are highly correlated.

Conventional difference-of-means tests rely upon statistical significance to determine the rejection of the test hypothesis. Labovitz (1970b) indicates that significance tests are inapplicable to the goals of science, trivial as they pertain to the null hypothesis, and overwhelmingly

effected by sample size; i.e. Test Statistic = Effect Size * Sample Size (Cohen and Cohen, 1983). The test statistic determines statistical significance and predicates the decision to reject the test hypothesis. Since the probability of a statistically significant result is proportionate to the sample size, a more accurate portrayal of the importance of a hypothesis test is the effect size. Therefore, due to the large sample (N=996) used in this analysis, the effect size of each analysis will be the basis for the rejection of a test hypothesis.

Cohen and Cohen (1983:161; see also Cohen, 1977) recommend the following conventional magnitudes for R^2 corresponding to small, medium and large effect sizes, as appropriate for many areas of social science investigation: .02, .15 and .25 respectively. For the purposes of this research, these values will refer to the total discriminatory power[5] (w2) of each discriminatory analysis; that is, the proportion of the variance explained in the dependent groups by the linear combination of the discriminant variables.

Where the total discriminatory power is greater than or equal to .10 (= w2), the test hypothesis will be rejected. The reason for this is because of the following: while a

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[5] Total discriminatory power (w2) is the squared value of Pearson's product-moment correlation and is analogous to the R^2 of multiple regression analysis.

"medium" effect size (f^2 = .15) may seem appropriate where the number of independent variables (k) is 5 or 10, where k=15, these variables account for (.15/15 =) .01 of the variance in Y (Cohen and Cohen, 1983:161). The number of independent variables (k) in this research ranges from a low of 7 (social drinking variables) to a high of 11 (situational frequency and situational quantity) and either variable set would account for (.10/7 or .10/11 ≈) .01 of the variance in Y. Therefore, a discriminant power of less than .10 would result in the failure to reject the test hypothesis[6].

The discriminant analysis begins with the desire to statistically distinguish between two or more groups (Klecka, 1975:435-6). A number of variables on which the groups are expected to differ are selected for analysis. The mathematical objective of discriminant analysis is a weighted sum, or linear combination, of the discriminating variables so that the groups are as statistically distinct as possible (Becker and Kronus, 1977:484). The weights, or standardized discriminant coefficients, are analogous to beta weights in multiple regression analysis, and can be used to identify which discriminating variables contributed most to the differentiation among the groups with the effects of all other

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[6] Becker and Kronus (1977:493) found the smallest total discriminatory power of any of the group variables was for sex (w2=.10).

variables partialled out (Tatsuoka, 1970:4).

The discriminating variables are identified by use of the groups centroids. A group centroid is the location of the group variables relative to one another. The centroids are the mean value of the group variables, for each discriminating variable, across all the discriminating variables. The greater the distance between the centroids, the greater the variance between the groups. The relative contribution of each variable to the total explained variance in the dependent variable is indicated by the standardized discriminant coefficients. The use of standardized coefficients are superior for comparative purposes because they are not affected by the variables' unit of measure.

The coefficients can also be used to determine which group is best characterized by specific discriminating variables. This is determined by examining the centroid for each group along with the signs and sizes of each standardized coefficient. The group with the highest mean score on the centroid is the one best described by the variables displaying large positive coefficients, and the group with the lowest mean score on the centroid is best characterized by those variables with large negative coefficients (Tatsuoka, 1970:4). Variables located between the extreme mean scores have small coefficients and contribute little to explaining the variance between the groups. For the purposes of this research, and

parsimony, standardized discriminant coefficients of less than .20 are eliminated from discussion.

The linear equation can also be expressed as a discriminant function that maximally distinguishes between the groups. The number of discriminant functions that can be derived from a set of variables is one less than the number of groups (g - 1). In the multi-group analyses, the discriminant functions derived are orthogonal to one another. The first linear combination of discriminant variables is the best mathematical representation of the correlation between a group and its discriminant function. When this first discriminant function is partialled out, the entire process is repeated on the residual variables. In each function, new weights are calculated and the residualizing process assures a condition of orthogonality such that all correlations among the discriminant variables and all correlations among the group variables are zero (Cohen and Cohen, 1983:454).

Each function that is derived from the variables can be expressed as the proportion of variance explained between the groups. In a two-groups analysis, the discriminant function is simply Pearson's product-moment correlation. The squared value of the discriminant function in a two-group case is the total discriminatory power of each set of discriminating variables, or the multiple R-square of multiple regression analysis. For multi-group analyses, the total discriminatory

power of each set of discriminating variables is calculated by the following:

$$\omega^2 = 1 - \frac{N}{(N-g)(1 + \lambda_1)(1 + \lambda_2)\ldots(1 + \lambda_q) + 1}$$

where N is the total sample size used in the analysis, g is the number of groups in the analysis, λ are the eigenvalues of the q significant discriminant functions derived from the analysis (Tatsuoka, 1970:48). Eigenvalues are the ratio of between-groups to within-groups sums of squares (Norusis, 1985:89).

The discriminant analysis of the convergence hypothesis proceeds by identifying the discriminating variables that best distinguish between the groups. The second step is to determine, by means of the total discriminatory power of the variable sets, how efficiently the discriminant functions are able to discriminate when the group variables are SEX, AGE, MARITAL STATUS, PARENTAL STATUS and SOCIO-ECONOMIC POSITION or the interaction variables with SEX. Using the sample of status consistent individuals for analysis, the test hypothesis in this research predicts that women and men in equivalent social positions will have similar patterns of alcohol use. The accuracy of this variation of the convergence hypothesis will be tested by the following:

Hypothesis 1: There is no substantive[7] difference ($w2 < .10$) in the patterns of alcohol use between status consistent women and men.

Hypothesis 2: The variance in the patterns of alcohol use between status consistent men and women is less than the variance in the other group variables.

Hypothesis 3: The effect of SEX in accounting for the variance in patterns of alcohol use among the interactive groups is less than the effect of the other group variables.

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[7] The term 'substantive' refers to the use of the 'effect size' [in this instance the amount of variance explained between the group variables] and not the 'significance' of the statistical test to reject the null hypothesis.

Chapter Three

Analysis of Data

Introduction

This chapter will discuss the data analysis. The first section will discuss the total discriminatory power of the discriminant functions for the group and the interactive group variables for each discriminant variable set. Section ll will discuss the analysis of the group variables and Section lll will discuss the analysis of the interactive group variables.

1. Discriminatory Power of Discriminant Functions

The following discussion refers to Table 4. The total discriminatory power (w2) of a discriminant function is the amount of variance between the groups that is explained by the linear combination of the discriminatory functions (variables). In discriminant analysis, the greater the variance explained, the greater the ability of the discriminant functions to predict group membership. When groups are similar, the discriminant functions do not effectively predict group membership and the amount of variance "explained" between the groups is small. For the

purposes of this thesis, when the variance explained between groups by the sets of discriminant functions is greater than or equal to .10 (= w2) the test hypothesis is rejected.

This section discusses the efficiency of the discriminant functions to discriminate when the groups variables are SEX, AGE, MARITAL STATUS, PARENTAL STATUS and SOCIO-ECONOMIC STATUS. For example, if the total discriminatory power (w2) for SEX is smaller than the total discriminatory power (w2) for PARENTAL STATUS, this would indicate that the variable set explained a lower proportion of the variance between women and men than between parents and non-parents.

The first hypothesis tested in this analysis stated that there would be no substantive difference (w2 < .10) between status consistent women and men in this sample. The analytic results indicate that there are no substantive differences between status consistent men and women in their patterns of alcohol use as indicated by the set of situational frequency variables (w2 = .05), by the set of situational quantity variables (w2 = .04), by the set of social drinking variables (w2 = .09) and by the set of individual quantity-frequency variables (w2 = .08). These results indicate that status consistent women and men do not differ in their patterns of alcohol use as described by the four sets of discriminant variables. The variability in alcohol use between status consistent men and women is greatest in the indicators of

social drinking, followed by the indicators of individual quantity-frequency of alcohol use. The small variance explained by the set of situational frequency and situational quantity variables indicates that the patterns of alcohol use between status consistent men and women is similar in most situational drinking settings. However, individual differences in most settings between the two groups are still evident.

The second hypothesis tested in this analysis stated that the total discriminatory power (w2) of the variable sets would be lower for SEX than for AGE, MARITAL STATUS, PARENTAL STATUS and SOCIO-ECONOMIC STATUS (SES). The results of the analysis fail to reject this hypothesis for the set of situational frequency and situational quantity variables. That is, the set of situational frequency variables was more efficient at discriminating between the AGE groups (w2 = .12), the MARITAL STATUS groups (w2 = .15), the PARENTAL STATUS groups (w2 = .06) and the SES groups (w2 = .19) than between status consistent men and women (w2 = .05). Thus, there are substantive differences between younger and older individuals, married and single persons, and between low, medium and high SES positions in their patterns of situational frequency of alcohol use. However, there are no substantive differences between status consistent women and men and between parents and non-parents in the set of situational frequency variables.

Table 4: Total Discriminatory Power of the Discriminant Functions for the Group Variables and the Interactive Group Variables, by Variable Sets.

	Situational Frequency	Situational Quantity	Social Drinking	Quantity-Frequency
SEX	0.05	0.04	0.09	0.08
AGE	0.12	0.13	0.09	0.12
Marital Status	0.15	0.14	0.07	0.03
Parental Status	0.06	0.06	0.09	0.02
SES	0.19	[illegible].17	0.09	0.15
SEXAGE	0.19	0.19	0.18	0.20
SEXMAR	0.21	0.19	0.12	0.10
SEXKIDS	0.10	0.10	0.17	0.08
SEXSES	0.24	0.18	0.21	0.22

All results $p < .05$

The set of situational quantity variables was also more efficient at discriminating between the AGE groups (w2 = .13), the MARITAL STATUS groups (w2 = .14), the PARENTAL STATUS groups (w2 = .06) and the SES groups (w2 = .17) than between status consistent women and men (w2 = .04). Thus there are substantive differences between younger and older individuals, between married and single persons, and between low, medium and high SES positions in their patterns of situational quantity of alcohol use. However, there are no substantive differences between status consistent men and women and between parents and non-parents in the set of situational quantity variables.

The set of social drinking variables was slightly less efficient at discriminating between the MARITAL STATUS groups (w2 = .07) and the PARENTAL STATUS groups (w2 = .08) than between status consistent men and women (w2 = .09), but equally as effective in discriminating between the SEX groups (w2 = .09), the AGE groups (w2 = .09) and the SES groups (w2 = .09). In this instance, the set of social drinking variables did not find substantive differences among or between any of the discriminant groups. Therefore, there were no substantive differences between any of the groups in the patterns of the social drinking of alcohol.

The set of individual quantity-frequency variables was more efficient at discriminating between the SEX groups (w2 =

.08) than between the MARITAL STATUS groups (w2 = .03) and PARENTAL STATUS (w2 = .02) groups, but less effective at discriminating between the SEX groups (w2 = .08) than between the AGE groups (w2 = .12) and the SES (w2 = .15) groups. Thus, there are substantive differences between younger and older individuals, and between high, medium and low SES positions, but no substantive differences between status consistent women and men, between married and single persons, and between parents and non-parents in the pattern of individual quantity-frequency of alcohol use.

Among the interactive group variables, the set of situational frequency variables, the set of individual quantity-frequency and the set of social drinking variables explained more of the variance in SEXSES (w2 = .24, .22 and .21, respectively) than between the other interactive groups. The set of situational quantity variables explained more of the variance in SEXMAR (w2 = .19) and SEXAGE (w2 = .19) than between any of the other interactive groups. For each of the interactive groups, the set of situational frequency variables were the most powerful discriminating variables, followed by the set of social drinking, situational quantity and individual quantity-frequency variables.

11. Analysis of Groups Variables

This section will discuss the analysis of the group variables by the discriminatory variable sets. The discussion in this section will follow Table 6 to Table 10 inclusive and will frequently refer to Table 5, which presents the group means (centroids) for each discriminant function.

The centroids can be interpreted as follows: the group with the highest mean score (centroid) on the discriminant function is the one best described by the variables displaying large positive coefficients and the group with the lowest mean score (centroid) on the discriminant function is best characterized by those variables with large negative coefficients (Becker and Kronus, 1977:488 following Tatsuoka, 1970:4). For example, in a bipolar space in which all female cases are clustered at one pole (either negative or positive), and all male cases are clustered at the other pole, whenever a variable is a powerful discriminator between these two groups it tends to 'gravitate' much closer to one pole than the other (Becker and Kronus, 1977:488). Non-powerful discriminating variables are located between the poles and have small coefficients, but the location of a group centroid at either pole is irrelevant[1]. The primary task is to compare each group centroid with the corresponding coefficients on

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[1] The actual signs have no inherent theoretical or substantive meaning (Becker and Kronus, 1977).

each discriminant function.

i. Sex as Dependent Variable

This discussion will focus on Table 6, which describes those variables where status consistent men and women are most highly differentiated. The frequency of drinking in a variety of situations best describes men as a group. The number of times men drank in bars or taverns, at concerts, at home, at clubs or at sports events are higher than for women. By contrast, the frequency of drinking at dinner and at social occasions are primarily describe drinking situations for women. However, the set of situational frequency variables explain a small amount of the variance in SEX ($w2 = .05$). This suggests that women and men are more alike as a group in the frequency of their overall drinking patterns than indicated by the individual differences.

Alcohol consumption is higher for men than for women in most drinking situations. Men consume higher amounts of alcohol in bars or taverns, at leisure activities, at home, at concerts, at sports events, and at clubs, but women have a higher individual alcohol consumption level at dinner in a restaurant. Situational quantity explains the smallest amount of the variance in SEX ($w2 = .04$) and is the least efficient at discriminating between status consistent women and men as

Table 5: Group Centroids for each Discriminant Function.

	Situational Frequency	Situational Quantity	Social Drinking	Quantity-Frequency
SEX:				
Women	-0.39	-0.34	-0.53	-0.50
Men	0.14	0.12	0.18	0.18
AGE:				
15-29	0.53	0.58	-0.46	0.54
30 and over	-0.25	-0.27	0.22	-0.26
Marital Status:				
Single	0.56	0.54	0.38	0.24
Married	-0.32	-0.31	-0.22	-0.14
Parental Status:				
Non-Parental	0.20	0.21	-0.26	0.12
Parental	-0.30	-0.31	0.38	-0.17
Socio-economic Status:				
Low	-0.38	-0.34	-0.16	0.29
Medium	0.30	0.19	-0.02	-0.16
High	0.77	0.75	0.41	-0.63

. Table 6: Standardized Discriminant Functions for Powerful Discriminating Variables, by Sex.

Variable Sets and Individual Variable Descriptions	Coefficients	Men Mean	Men S.D.	Women Mean	Women S.D.
Situational Frequency:					
Times drank at Bar/Tavern	0.50	0.73	0.73	0.53	0.61
Times drank at Concerts	0.39	0.18	0.34	0.10	0.24
Times drank at Home	0.35	0.88	0.84	0.70	0.81
Times drank at Clubs	0.27	0.23	0.49	0.15	0.36
Times drank at Sports	0.23	0.30	0.57	0.18	0.47
Times drank at Dinner	-0.59	0.63	0.64	0.68	0.59
Times drank at Socials	-0.27	0.66	0.43	0.66	0.37
Situational Quantity:					
Amount drank at Bar	0.53	0.27	0.39	0.16	0.27
Amount drank at Leisure	0.31	0.11	0.20	0.07	0.12
Amount drank at Home	0.30	0.27	0.33	0.21	0.27
Amount drank at Concerts	0.29	0.03	0.10	0.01	0.04
Amount drank at Sports	0.23	0.07	0.19	0.04	0.13
Amount drank at Clubs	0.23	0.05	0.17	0.03	0.12
Amount drank at Dinnner	-0.45	0.12	0.19	0.13	0.17
Social Events:					
Times Spouse drank	1.90	0.63	0.73	0.87	0.91
Times drank with Spouse	0.62	0.63	0.73	0.65	0.72
Times drank with Friends	0.39	1.30	0.52	1.12	0.40
Times drank Alone	0.31	0.44	0.67	0.23	0.49
Amount Spouse drank	-2.84	0.74	0.86	1.08	1.11
Quantity-Frequency:					
Times drank Last year	1.30	1.70	0.51	1.41	0.50
Drinks/Day Last Week	1.29	0.006	0.01	0.004	0.008
Highest # of Drinks	0.44	0.06	0.03	0.05	0.03
Amount drank Last Week	-1.46	0.04	0.06	0.03	0.05
Amount drank Last Year	-0.32	0.72	0.44	0.50	0.38
# Days drank Last Week	-0.25	0.29	0.28	0.24	0.26

Standardized discriminant functions less than .20 are not reported

a group.

Social drinking events explain a small amount of the variance in SEX (w2 = .09) which suggests that "who drinks what with whom" is similar for women and men. However, men are described by the number of times their spouses' drank, the number of times they drank with their spouses, the number of times they drank with their friends and the number of times they drank alone. Women are described by the amount their spouses' drank.

Finally, the individual Quantity-Frequency of alcohol use explains a small amount of the variance between status consistent women and men (w2 = .08). Men are described by the number of times they drank last year, the number of drinks they consumed per day last week, and the highest number of drinks they consumed on one occasion. Women are best described by the number of drinks they consumed last week, the number of drinks they consumed last year, and the number of days they drank last week.

ii. Age as Dependent Variable

The discussion in this section follows Table 7, with additional reference to Table 4 (Total Discriminatory Power) and Table 5 (Group Centroids). The two age groups to be discussed are those individuals aged 15 - 29, and those

individuals aged 30 and over. The former will be referred to as the 'younger' age group and the latter will be called the 'older' age group for comparative purposes only.

Situational frequency explains a small amount of the variance in AGE (w2 = .12). The younger age group is best described by the number of times they drank in bars or taverns, at concerts and at social events. The number of times they drank at home and at dinner best describes the older age group. As well, the quantity of alcohol consumed at dinner and at home describes the older age group. The younger age group consumes more alcohol at bars or taverns, social events, and while visiting others. Situational quantity explains a medium amount of the variance in AGE (w2 = .13).

The younger age group tends to drink with friends and co-workers, and are differentiated from the older age group by the quantity of alcohol that their spouses consume. The older age group is different from the younger age group in the number of times their spouses drank, the number of times they drank with their spouses and the number of times they drank alone. The social aspects of drinking are not dissimilar between the two age groups, and social drinking explains a small amount of the variance in AGE (w2 = .09).

The individual indicators of the quantity-frequency of alcohol use describes the younger age group by the highest number of drinks they had on one occasion and the amount they

. Table 7: Standardized Discriminant Functions for Powerful Discriminating Variables, by Age.

Variable Sets and Individual Variable Descriptions	Coefficients	30 and Older Mean	30 and Older S.D.	15 - 29 Mean	15 - 29 S.D.
Situational Frequency:					
Times drank at Bar/Tavern	0.77	0.54	0.65	0.96	0.73
Times drank at Concerts	0.34	0.13	0.29	0.23	0.37
Times drank at Social	0.31	0.62	0.39	0.75	0.43
Times drank at Home	-0.28	0.87	0.84	0.74	0.81
Times drank at Dinner	-0.28	0.65	0.63	0.64	0.63
Situational Quantity:					
Amount drank at Bar	0.61	0.17	0.30	0.39	0.44
Amount drank at Socials	0.48	0.13	0.14	0.23	0.23
Amount drank at Visiting	0.29	0.19	0.23	0.29	0.30
Amount drank at Home	-0.33	0.27	0.32	0.24	0.30
Amount drank at Dinner	-0.27	0.12	0.19	0.13	0.19
Social Events:					
# Times Spouse drank	2.89	0.77	0.80	0.53	0.73
Times drank with Spouse	0.39	0.70	0.73	0.48	0.69
Times drank Alone	0.36	0.41	0.67	0.32	0.56
Amount Spouse drank	-2.77	0.90	0.94	0.67	0.93
Times drank w/Friends	-0.51	1.20	0.48	1.38	0.51
Times drank w/Co-workers	-0.28	0.57	0.61	0.76	0.67
Quantity-Frequency:					
Highest # of drinks	0.97	0.05	0.03	0.07	0.03
Amount drank Last Week	0.41	0.04	0.06	0.04	0.06
# Days in week drank	-0.35	0.28	0.29	0.26	0.26
Amount/Day Last Week	-0.32	0.005	0.01	0.007	0.01
Times drank Last Year	-0.23	1.63	0.54	1.61	0.47

Standardized discriminant functions less than .20 are not reported

drank last week. The older age group is described by the number of days they drank last week, the amount per day they drank last week and the number of times they drank last year. The set of individual quantity and frequency indicators of alcohol use explains a medium amount of the variance in AGE (w2 = .12) and is the most efficient discriminating variable set between younger and older age groups relative to the other variable sets.

iii. Marital Status as Dependent Variable

This section discusses the results presented in Table 8. Marital status is represented by two groups: 'single' and 'married or living with a partner'. The latter group will simply be referred to as 'married'. The MARITAL STATUS groups are best differentiated by the situational frequency (w2 = .15) of alcohol use. Singles are described by their frequency of drinking in bars or taverns, while visiting others, at dinner and at concerts. The quantity of alcohol drank at bars or taverns, at dinner, while visiting others and at concerts also described the singles group. Drinking at home and with visitors, and the amount they drank at home, with visitors and at social events describes the married group. Situational quantity explained a medium proportion of the variance in MARITAL STATUS (w2 = .14).

. Table 8: Standardized Discriminant Functions for Powerful Discriminating Variables, by Marital Status.

Variable Sets and Individual Variable Descriptions	Coefficients	Married Mean	Married S.D.	Single Mean	Single S.D.
Situational Frequency:					
Times drank at Bar/Tavern	0.67	0.52	0.64	0.94	0.73
Times drank Visiting	0.33	0.83	0.55	1.00	0.67
Times drank at Dinner	0.32	0.56	0.57	0.80	0.69
Times drank at Concerts	0.31	0.12	0.27	0.23	0.39
Times drank at Home	-0.44	0.90	0.83	0.70	0.82
Times drank with Visitors	-0.28	0.91	0.55	0.87	0.66
Situational Quantity:					
Amount drank at Bar	0.62	0.17	0.30	0.36	0.42
Amount drank at Dinner	0.49	0.09	0.14	0.18	0.24
Amount drank Visiting	0.49	0.19	0.23	0.29	0.30
Amount drank at Concerts	0.20	0.02	0.06	0.04	0.12
Amount drank at Home	-0.37	0.27	0.31	0.23	0.33
Amount drank w/Visitors	-0.31	0.22	0.24	0.24	0.29
Amount drank at Socials	-0.25	0.15	0.16	0.18	0.20
Social Events:					
Times drank with Friends	0.71	1.18	0.47	1.39	0.51
Times drank w/Co-Workers	0.52	0.54	0.60	0.79	0.65
Times drank with Family	-0.57	0.88	0.51	0.80	0.55
Quantity-Frequency:					
Amount/Day Last Week	1.21	0.005	0.009	0.008	0.01
Amount drank Last Year	1.18	0.62	0.42	0.75	0.46
Highest # of Drinks	0.45	0.05	0.03	0.06	0.03
Amount drank Last Week	-1.06	0.03	0.05	0.05	0.07
Times drank Last Year	-0.52	1.59	0.52	1.68	0.52
Times had 5+ drinks	-0.26	0.07	0.04	0.08	0.05

Standardized discriminant functions less than .20 are not reported

Analysis and discussion of social drinking for marital status does not include the three spousal drinking variables. This is because responding to these three questions assumes the presence of a spouse. The absence of a spouse or partner infers the respondent is single. The behaviour of spouses may explain the variance within the married group, but would not explain the variance within the single group. In other words, inclusion of these variables discriminates on the absence or presence of a spouse, not on their affect upon the respondent's drinking behaviour. Singles tend to drink with their friends and co-workers, while married people drink with their family. Social drinking explains a small proportion of the variance in MARITAL STATUS (w2 = .07).

The quantity-frequency of alcohol use is the least efficient discriminant variable set in explaining the variance in MARITAL STATUS (w2 = .03). Singles are described by the amount they drank per day last week, the amount they drank last year, and the highest number of drinks they had on a single occasion. Not to be outdone, married people are described by the amount they drank last week, the number of times they drank last year and the number of times they had five or more drinks. There is little difference between these groups in the quantity of alcohol consumed, just minor differences in how they managed it.

iv. Parental Status as Dependent Variable

The results of the analysis of parental status as a dependent variable are presented in Table 9. Parental status is not predicated on actual reproductive performance, but on the presence or absence of children in the home. Thus the non-parental group will include individuals who have had children, but who were no longer present in the home at the time of the survey. The presence of children in the home had the worst discriminatory results of all the dependent variable groups other than SEX.

Situational frequency of alcohol use explained only a small amount of the variance in PARENTAL STATUS (w2 = .06). The non-parental group frequently drank in bars or taverns, at dinner and at concerts. Frequent drinking at social events and at home best described the parental group. Although there are differences between the parental status groups on individual quantity variables, overall situational quantity explained only a small proportion of the variance in PARENTAL STATUS (w2 = .06).

Social drinking identified the non-parental group by the amount of alcohol their spouses consumed and the number of times they drank with their spouses. The number of times their spouses' drank and the number of times they drank with their friends best described the parental group. Social

. Table 9: Standardized Discriminant Functions for Powerful Discriminating Variables, by Parental Status.

Variable Sets and Individual Variable Descriptions	Coefficients	Parental Mean	Parental S.D.	Non-Parental Mean	Non-Parental S.D.
Situational Frequency:					
Times drank at Bar/Tavern	0.64	0.53	0.63	0.78	0.74
Times drank at Dinner	0.59	0.52	0.56	0.73	0.66
Times drank at Concerts	0.20	0.13	0.28	0.18	0.35
Times drank at Socials	-0.29	0.66	0.41	0.66	0.41
Times drank at Home	-0.23	0.85	0.83	0.82	0.84
Situational Quantity:					
Amount drank at Dinner	0.71	0.08	0.13	0.15	0.21
Amount drank at Bar	0.67	0.17	0.30	0.29	0.39
Amount drank at Socials	-0.38	0.16	0.18	0.16	0.18
Amount drank w/Visitors	-0.26	0.23	0.25	0.23	0.26
Amount drank at Home	-0.22	0.27	0.32	0.25	0.32
Social Events:					
Amount Spouse drank	1.82	1.13	0.91	0.62	0.90
Times drank w/Spouse	0.50	0.86	0.71	0.48	0.70
Times Spouse drank	-1.35	0.94	0.75	0.53	0.77
Times drank w/Friends	-0.31	1.20	0.47	1.29	0.51
Quantity-Frequency:					
Amount/Day Last Week	1.13	0.005	0.008	0.007	0.01
Amount drank Last Year	1.09	0.62	0.41	0.70	0.45
Times had 5+ drinks	-0.76	0.07	0.04	0.07	0.04
Amount drank Last Week	-0.72	0.03	0.04	0.04	0.07

Standardized discriminant functions less than .20 are not reported

drinking had the best performance in this analysis and explained a small proportion of the variance in PARENTAL STATUS (w2 = .09). By contrast, the worst performance among the variable sets was by quantity-frequency, which explained only a small amount of the variance in PARENTAL STATUS (w2 = .02). The non-parental group was described by the amount they drank per day last week and the amount they drank last year. The parental group was identified by the number of times they had five or more drinks and the amount they drank last week.

v. Socio-economic Position as Dependent Variable

The discussion of socio-economic position as a dependent variable follows Table 10. The discussion will focus on the two groups identified as most distinct by the group centroids. The three socio-economic positions will be identified as the 'high', 'medium' or 'low' group.

Situational frequency is most efficient among the four analyses of this dependent variable in explaining a medium amount of the variance in SOCIO-ECONOMIC POSITION (w2 = .19). The number of times they drank and the number of drinks they consumed at dinner and at lunch describes the high group, while the number of times they drank and the number of drinks they consumed at a bar or tavern describes the low group. Situational quantity explains a medium amount of the variance

. Table 10: Standardized Discriminant Functions for Powerful Discriminating Variables, by Socio-Economic Position

Variable Sets and Individual Variable Descriptions:	Coefficien	High Mea	High S.D	Medium Mea	Medium S.D	Low Mea	Low S.D.
Situational Frequency:							
Times drank at Dinner	0.86	1.01	0.61	0.80	0.56	0.46	0.58
Times drank at Lunch	0.35	0.34	0.60	0.16	0.40	0.09	0.31
Times drank at Bar	-0.45	0.63	0.62	0.61	0.63	0.71	0.75
Situational Quantity:							
Amount drank at Dinner	0.85	0.22	0.23	0.15	0.17	0.08	0.16
Amount drank at Lunch	0.27	0.06	0.14	0.02	0.07	0.02	0.09
Amount drank at Bar	-0.55	0.16	0.22	0.19	0.29	0.28	0.41
Social Drinking:							
Times Spouse drank	4.11	0.58	0.82	1.02	0.87	0.67	0.73
Times drank w/Workers	0.70	0.79	0.59	0.61	0.59	0.57	0.65
Amount Spouse drank	-4.18	0.65	0.92	1.20	1.02	0.81	0.91
Times drank w/Spouse	-0.21	0.53	0.76	0.83	0.75	0.63	0.70
Quantity-Frequency:							
Amount drank Last Year	0.72	0.65	0.40	0.57	0.38	0.69	0.46
Highest # of drinks	0.59	0.04	0.02	0.05	0.03	0.06	0.03
Amount drank Last Week	0.23	0.04	0.05	0.03	0.05	0.04	0.07
Times drank Last Year	-0.87	1.74	0.53	1.53	0.53	1.60	0.51
# Days in Week drank	-0.53	0.34	0.30	0.29	0.27	0.25	0.27

Standardized discriminant functions less that .20 are not reported.

in SOCIO-ECONOMIC POSITION (w2 = .17).

Social drinking was the poor performer in this analysis, and explained a small amount of the variance in SOCIO-ECONOMIC POSITION (w2 = .09). The number of times their spouses drank, and the number of times they drank with their co-workers, describes the high group. The amount their spouses drank and the number of times they drank with their spouses describes the low group. As well, the low group is described by the amount they drank last year, the highest number of drinks they had a one time and the amount they drank per day last week. By contrast, the high group is identified by the number of times they drank last year and the number of days they drank last week. Quantity-frequency variables accounted for a medium amount of the variance in SOCIO-ECONOMIC POSITION (w2 = .15).

lll. Analysis of Interactive Group Variables

This third section of this chapter will discuss the interactive groups as dependent variables in the discriminant analysis. There will be four sub-sections representing Situational Frequency (Table 11), Situational Quantity (Table 12), Social Drinking (Table 13) and Quantity-Frequency (Table 14). Based on the overall general hypothesis, it is expected that SEX will not be the major difference isolated by the

discriminating variables in the interactive group analysis.

i. Situational Drinking Frequency

The results of the discriminant analysis of the four interactive groups by the situational frequency variables is presented in Table 11. Among the four groups, only SEXAGE produces as many as three significant functions (maximum number possible = g - 1), meaning that much of the variance in SEXAGE is accounted for by the frequency variables (w2 = .19). According to Becker and Kronus (1977:490) this indicates that the discriminant functions are distinguishing between the dependent variables in this group more successfully than between the dependent variables in the other groups. However, the total discriminatory power of the situational variable set in explaining the variance in SEXAGE (w2 = .19) is less than the variance explained in SEXMAR (w2 = .21) and SEXSES (w2 = .24), both of which had only two significant discriminant functions. Following Klecka (1977), only the significant discriminant functions are derived from the analysis and used in the calculation of the total discriminatory power of the analysis. Therefore, the efficiency of the discriminating variable sets will be predicated on the total discriminatory power of the analysis rather than on the number of significant functions derived.

The main point of interest in this interactive group analysis is the major differences isolated by the discriminating variable sets. The statistically significant functions that are derived from the analysis locate the dependent variable groups by their group centroids. The groups that have the highest group means (positive centroids) are those dependent variables best described by the variables with positive functions (coefficients) and those groups with the lowest group means (negative centroids) are those dependent variables best described by the variables with negative functions (coefficients). The major difference between the variables is isolated by comparing the distance between the highest centroid (positive) and the lowest centroid (negative). These are the groups that are furthest apart. As well, how the dependent variables are 'grouped' by the discriminating functions is an indication of the major difference between the groups.

For example, in Table 11, under the heading of SEXAGE, the analysis has identified Young Men (positive centroid=.70) and Older Women (negative centroid=-.37) as the groups that are farthest apart in this variable set. However, this also identifies two dependent variables: AGE and SEX. In order to determine the major difference, it is necessary to examine how the interactive dependent variables are 'grouped' by the discriminant functions. In this instance, Older Men (negative

centroid=-.20) are closer to Older Women than are Younger Women (negative centroid=-.00) and the major difference is mainly due to AGE.

In the second statistically significant discriminant function derived from SEXAGE by the situational frequency variables, the groups that are farthest apart are Older Men (positive centroid=.16) and Older Women (negative centroid=-.30). Since Younger Women share the same centroid (-.30) as the Older Women, the major difference is mainly due to SEX.

In the interactive group analyses by Situational Frequency, the first statistically significant discriminant functions derived are demographic characteristics other than SEX. This variable emerges only on the derivation of the second statistically significant discriminant function. It appears that the drinking variables discriminate more powerfully between AGE, MARITAL STATUS, PARENTAL STATUS and SOCIO-ECONOMIC POSITION than between the SEX groups.

The situational frequency variable set grouped SEXAGE by AGE in the first discriminant function. Young Men (.70) are described by their frequency of drinking in bars or taverns, at concerts, while visiting others and at social events. By contrast, Older Women (-.37) are described by their frequency of drinking at dinner. In the second function, Older Men (.16) are described by their frequency of drinking at home, at clubs, at lunch and at sports events. Drinking at social

Table 11: Summary of Data for Situational Drinking Frequency, by Groups

	SEXAGE		SEXMAR		SEXKIDS		SEXSES	
Canonical Correlations	.38 .19 .14		.41 .22		.26 .21		.45 .22	
Positive Functions	Bar	.76	Bar	.73	Bar	.73	Dinner	.84
	Concert	.40	Concert	.38	Concert	.41	Lunch	.36
	Visit	.21	Visit	.33				
	Social	.21						
Negative Functions	Dinner	-.38	Home	-.35	Social	-.45	Bar	-.45
			Visitor	-.23				
Groups with Positive Centroids	Young Men	.70	Single Men	.71	Non-parental Men	.29	High SES Men	.87
			Women	.18			Women	.54
							Medium SES Women	.14
							Men	.21
Groups with Negative Centroids	Older Women	-.37	Married Women	-.46	Parental Women	-.38	Low SES Women	-.39
	Men	-.20	Men	-.28	Non-parental Women	-.20	Men	-.37
	Young Women	-.00			Parental Men	-.20		
Major Differences:	Mainly Age		Marital Status		Unclear		Mainly SES	
Positive Functions	Home	.59	Home	.51	Home	.45	Concerts	.42
	Bar	.36	Sports	.35	Sports	.30	Bar	.40
	Lunch	.33	Concerts	.27	Club	.24	Club	.34
	Sports	.25	Visitors	.24	Concerts	.21	Home	.29
			Bar	.21	Visitors	.20	Lunch	.26
			Club	.21			Sports	.24
Negative Functions	Social	-.49	Dinner	-.77	Dinner	-.93	Dinner	-.38
	Dinner	-.47	Social	-.21			Social	-.28
Groups with Positive Centroids	Older Men	.16	Married Men	.14	Parental Men	.25	Medium SES Men	.21
			Single Men	.08			High SES Men	.18
							Low SES Men	.11
Groups with Negative Centroids	Older Women	-.30	Single Women	-.53	Non-parental Women	-.43	Medium SES Women	-.47
	Younger Women	-.30	Married Women	-.21	Parental Women	-.06	Low SES Women	-.37
	Men	-.02			Non-parental Men	-.01	High SES Women	-.27
Major Differences:	Mainly Sex		Sex		Mainly Sex		Mainly Sex	

events and at dinner describes Older Women (-.30).

Under the heading of SEXMAR, Single men (.72) are described by their drinking at bars or taverns, at concerts and while visiting others by the first discriminant function of SEXMAR. Married women (-.46) are described by their drinking at home and with visitors. The second function identifies drinking at home, at sports events, at concerts, with visitors, at bars or taverns and at clubs with Married Men (.14). Single women (-.53) are described by their drinking at dinner and at social events.

Under the heading of SEXKIDS, Non-parental men (.29) are described by the first discriminant function of SEXKIDS by their drinking in bars or taverns and at concerts. Drinking at social events describes Parental women (-.38). Parental men (.25) are described by their drinking at home, at sports events, at clubs, at concerts and with visitors in the second discriminant function of SEXKIDS. The frequency of drinking at dinner describes Non-parental women (-.43).

The first discriminant function of SEXSES describes High SES men (.87) by their drinking at dinner and at lunch. Low SES women (-.39) are described by their drinking in bars or taverns. In the second function, Medium SES men (.21) are described by their drinking at concerts, in bars or taverns, at clubs, at home, at lunch and at sports events. Drinking at dinner and at social events describes Medium SES women (-.47).

ii. Situational Drinking Quantity

This discussion follows the summary of the data for situational drinking quantity by groups in Table 12. In the first function of SEXAGE, Young men (.78) are described by the quantity of alcohol consumed at bars or taverns, at social events, while visiting others and at concerts. The quantity of alcohol consumed at dinner and at home describes Older women (-.32). Older men (.14) are described in the second discriminant function by their quantity of drinking at home, at leisure events, at bars or taverns, at sports events and at clubs. The quantity of drinking at social events, at dinner at a restaurant, and while visiting others describes Older women (-.22).

Single men (.70) are described by their quantity of drinking at bars or taverns, while visiting others, at dinner at a restaurant, and at concerts in the first discriminant function of SEXMAR. The quantity of alcohol consumed at home, with visitors and at social events describes Married women (-.38). Married men (.12) are described by their quantity of drinking at home, at leisure events, at sports events, at bars or taverns and at concerts in the second discriminant function of SEXMAR. Alcohol consumption at dinner at a restaurant describes Single women (-.50).

The first discriminant function of SEXKIDS describes

. Table 12: Summary of Data for Situational Drinking Quantity, by Groups

	SEXAGE		SEXMAR		SEXKIDS		SEXSES	
Canonical Correlations	.41	.17	.40	.20	.26	.20	.43	.
Positive Functions	Bar	.59	Bar	.69	Bar	.77	Dinner	.85
	Socials	.43	Visiting	.47	Dinner	.50	Lunch	.27
	Visiting	.33	Dinner	.38				
	Concerts	.21	Concerts	.24				
Negative Functions	Dinner	-.32	Home	-.31	Socials	-.49	Bar	-.56
	Home	-.27	Vistors	-.30	Visitors	-.26	Visitors	-.20
			Socials	-.27			Home	-.20
Groups with Positive Centroids	Younger Men	.78	Single Men	.70	Non-parental Women	.28	High SES Men	.81
			Women	.18			Women	.58
							Medium SES Women	.28
							Men	.06
Groups with Negative Centroids	Older Women	-.32	Married Women	-.38	Parental Men	-.30	Low SES Men	-.37
	Older Men	-.26	Men	-.29	Parental Women	-.29	Women	-.18
	Younger Women	-.02			Non-parental Men	-.06		
Major Differences:	Age		Marital Status		Parental Status		SES	
Positive Functions	Home	.54	Home	.41	Home	.40	No 2nd Function	
	Leisure	.36	Leisure	.32	Concerts	.27		
	Bar	.32	Sports	.31	Leisure	.27		
	Sports	.31	Bar	.31	Clubs	.25		
	Club	.30	Concerts	.21	Bar	.22		
Negative Functions	Socials	-.51	Dinner	-.66	Dinner	-.76		
	Dinner	-.31						
	Visiting	-.29						
Groups with Positive Centroids	Older Men	.14	Married Men	.12	Parental Men	.18		
			Single Men	.09	Non-parental Men	.06		
Groups with Negative Centroids	Older Women	-.33	Single Women	-.50	Non-parental Women	-.43		
	Younger Women	-.12	Married Women	-.18	Parental Women	-.14		
	Men	-.00						
Major Differences:	Sex		Sex		Sex			

non--Parental women (.28) by their alcohol consumption at bars or taverns and at dinner at a restaurant. Parental men (-.30) are described by drinking at social events and with visitors. The second discriminant function describes Parental men (.18) by their drinking at home, at concerts, during leisure activities, at clubs and at bars or taverns. Non-parental women (-.43) are described by their drinking at dinner at a restaurant.

High SES men (.81) are described in the first discriminant function of SEXSES by the quantity of alcohol they consume at dinner or lunch at a restaurant. Low SES men (-.37) are described by their drinking at bars or taverns, with visitors and at home. There is no second significant orthogonal discriminant function for this set of discriminating variables.

iii. Social Drinking

The discussion of the discriminant analysis results for social drinking variables follows Table 13. In this analysis, only SEXSES (w2 = .21) attains three statistically significant discriminant functions. SEX is the major difference isolated by the social drinking variables for SEXKIDS only. The major differences on the first significant discriminant function for the other interactive groups are AGE, MARITAL STATUS, and SES.

The first discriminant function of SEXAGE describes Younger men (.57) by the number of times they drank with their friends and with their family. Older women (-.40) are described by the number of times their spouse drank. In the second function, Younger men (.27) are described by the number of times their spouses' drank, the number of times they drank with their spouses and the number of times they drank alone. Younger women (-4.04) are described by the amount that their spouses' drank.

The number of times they drank with their friends and with their co-workers describes Single men (.55). Married women (-.43) are described by the number of times they drank with their family. In the second function, Married men (.13) are described by the number of times they drank with their family or alone. Single women (-.30) are described by the number of times they drank with their co-workers. Women with children in the home (.93) are described by the amount their spouses' drank. Men with no children in the home (-.34) are described by the number of times their spouses' drank and the number of times they drank with their friends. On the second function, men with children in the home (.33) are described by the number of times they drank with their spouses, the number of times their spouses' drank, the number of times they drank alone and the number of times they drank with their family. Women with no children in the home (-.31) are described by the

. Table 13: Summary of Social Drinking, by Groups

	SEXAGE		SEXMAR		SEXKIDS		SEXSES	
Canonical Correlations	.32 .29		.32 .15		.37 .22		.38 .24 .18	
Positive Functions	Friends	.61	Friends	.79	Q-spouse	2.78	F-spouse	2.52
	Family	.23	Workers	.40			Workers	.33
							Spouse	.33
Negative Functions	F-spouse	-.80	Family	-.40	F-spouse	-1.94	Q-spouse	-3.39
					Friends	-.40		
Groups with Positive Functions	Younger Men	.57	Single Men	.55	Parental Women	.93	High SES Women	.37
					Non-parental Women	.13	High SES Men	.35
					Parental Men	.10	Medium SES Men	.28
							Low SES Men	.10
Groups with Negative Functions	Older Women	-.40	Married Women	-.43	Non-parental Men	-.34	Low SES Women	-.91
	Younger Women	-.30	Men	-.14			Medium SES Women	-.69
	Older Men	-.08	Single Women	-.06				
Major Differences:	Age		Marital		Unclear		Mainly SES	
Positive Functions	F-spouse	3.41	Family	.67	Spouse	1.12	F-spouse	4.02
	Spouse	.74	Alone	.63	F-spouse	.54	Workers	.37
	Alone	.48			Alone	.31		
					Family	.21		
Negative Functions	Q-spouse	-4.04	Workers	-.39	Q-spouse	-.96	Q-spouse	-3.30
							Family	-.35
Groups with Positive Centroids	Older Men	.27	Married Men	.13	Parental Men	.33	Medium SES Women	.49
							High SES Men	.30
							Medium SES Men	.25
Groups with Negative Centroids	Younger Women	-.68	Single Women	-.30	Non-parental Women	-.31	Low SES Women	-.22
	Older Women	-.24	Married Women	-.16	Parental Women	-.15	High SES Women	-.22
	Younger Men	-.17	Single Men	-.02	Non-parental Men	-.08	Low SES Men	-.14
Major Differences:	Sex		Sex		Mainly Sex		Mainly Sex	

amount their spouses' drank.

Medium SES women (.49) are described by the number of times their spouses' drank, the number of times they drank with co-workers and the number of times they drank with their spouses, while Low SES men (.10) are described by the amount their spouses' drank. The second function describes Medium SES women (.49) by the number of times their spouses' drank and the number of times they drank with their co-workers. The amount their spouses' drank and the number of times they drank with their family describes Low SES women (-.22).

iv. Quantity-Frequency

This discussion follows Table 14. SEXAGE, SEXMAR AND SEXSES each derived two significant discriminant functions, while SEXKIDS derived only one. The quantity-frequency variables are most efficient in explaining the variance in SEXSES (w2 = .22). SEX is the major difference isolated by the quantity-frequency variables on two of the first significant discriminant functions for SEXMAR and SEXKIDS only. This indicates that the quantity-frequency variables discriminate as well between the SEX groups than as the other demographic variables.

The first discriminant function for SEXAGE describes Younger men (.68) by the highest number of drinks consumed on

one occasion and the number of times they drank last year. Older women (-.43) are described by the number of days they drank last week. On the second function, Older women (.23) are described by the number of drinks consumed per day last week and the number of times they drank last year. Younger women (-.58) are described by the amount they drank last week and last year.

Single men (.45) are described by the amount of alcohol consumed per day last week, the number of times they drank last year and the highest number of drinks consumed on one occasion. Married women (-.58) are described by the amount they drank last week and the number of days they drank alcohol last week. On the second function, Single men (.15) are described by the amount they drank last year, the amount they drank per day last week, and the number of days they drank last week. By contrast, Married men (-.14) are described by the number of times they drank last year, the number of time they had five or more drinks and the amount they drank last week.

Men with no children in the home (.22) are described by the amount they drank per day last week, the number of times they drank last year and the highest number of drinks consumed on one occasion. Women with children in the home (-.65) are described by the number of days they consumed alcohol last week.

. Table 14: Summary of Individual Quantity and Frequency of Drinking, by Groups

	SEXAGE		SEXMAR		SEXKIDS		SEXSES	
Canonical Correlations	.37 .26		.33 .14		.29 .		.42 .38	
Postive Functions	Drunk	.97	Q/Day	1.43	Q/Day	1.36	Q/Year	.67
	F/Year	.21	F/Year	.81	F/Year	1.21	Drunk	.55
			Drunk	.49	Drunk	.39	Q/Week	.40
Negative Functions	F/Week	-.37	Q/Week	-1.55	F/Week	-.23	F/Year	-.94
			F/Week	-.20			F/Week	-.55
							Q/Day	-.23
Groups with Positive Functions	Younger		Single		Non-parental		Low SES	
	Men	.68	Men	.45	Men	.22	Women	.30
	Women	.04	Married		Parental		Men	.28
			Men	.03	Men	.10	High SES	
							Men	-.83
Groups with Negative Functions	Older		Married		Parental		Women	-.16
	Women	-.43	Women	-.58	Women	-.65	Medium SES	
	Men	-.18	Single		Non-parental		Men	-.14
			Women	-.38	Women	-.38	Women	-.12
Major Differences:	Age		Sex		Sex		Mainly SES	
Positive Functions	Q/Day	1.43	Q/Year	1.93	No 2nd Function		Q/Day	1.38
	F/Year	1.39	Q/Day	.37			F/Year	1.30
			F/Week	.36			Drunk	.45
Negative Functions	Q/Week	-1.64	F/Year	-2.11			Q/Week	-1.48
	Q/Year	-.32	Five-Plus	-.33			Q/Year	-.37
			Q/Week	-.30			F/Week	-.33
Groups with Positive Functions	Older		Single				Low SES	
	Men	.23	Men	.15			Men	.20
			Women	.13			High SES	
			Married				Men	.14
			Women	.11			Medium SES	
							Men	.05
Groups with Negative Centroids	Younger		Married				Low SES	
	Women	-.58	Men	-.14			Women	-.59
	Older						Medium SES	
	Women	-.35					Women	-.57
	Younger						High SES	
	Men	-.02					Women	-.28
Major Differences:	Sex		Mainly Marital Status				Sex	

The first function of SEXSES describes Low SES women (.30) by the number of times they drank last year, the highest number of drinks consumed on one occasion and the number of drinks they consumed last week. High SES men (-.83) are described by the number of times they drank last year, the number of days they drank last week and the number of drinks they consumed per day last week. The second function describes Low SES men (.20) by the number of drinks they consumed per day last week, the number of times they drank last year and last week, the amount per day they drank last week, and the highest number of drinks consumed on one occasion. Low SES women (-.59) are described by the number of drinks they consumed last week, the number of drinks they consumed last year and the number of days they consumed alcohol last week.

The results of this analysis will be discussed further in the following chapter. In particular, the results will be summarized and discussed in reference to their support of the hypotheses tested in this analysis, their support of previous research and the theories discussed in Chapter 1.

Chapter Four

Discussion

Introduction

This chapter is organized into five sections. The first section of this chapter will discuss the results of the multivariate discriminant analysis of the previous chapter. The second section will summarize the analysis of the group variables. Power-control theory will be discussed in Section lll. In Section lV the research findings of this study will be compared with those of Becker and Kronus (1977) and previous research. Finally, Section V will discuss a research design appropriate for further study on this topic.

1. Summary of Results: Hypotheses

This section will discuss the results of the multivariate discriminant analysis of the hypothesis that women and men in equivalent social positions would have similar alcohol use patterns and behaviours. The discriminant analysis tested three specific hypotheses for each of the four discriminating variable sets (Situational Frequency, Situational Quantity, Social Drinking, Quantity-Frequency) for a total of twelve

hypotheses tested.

It was hypothesized that there would be no substantive[1] difference (w2 < .10) between women and men by the set of situational frequency variables, the set of situational quantity variables, the set of social drinking variables and the set of individual quantity-frequency variables. The results of the discriminant analysis did not find substantive differences between status consistent men and women and failed to reject this hypothesis for each of the four discriminating variable sets. Thus, while status consistent men drink significantly more alcohol than do status consistent women, the size of the difference is not as great as the other differences related to drinking. As a result, sex accounts for a significant amount of the variance in drinking, but in a smaller proportion than factors such as age, marital status and socio-economic position.

It was also hypothesized that the total discriminatory power (w2) of sex would be less than the total discriminatory power (w2) of the other group variables by situational frequency, situational quantity, social drinking and individual quantity-frequency. This hypothesis was not rejected for the set of situational frequency and the set of

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[1] The term 'substantive' is used to indicate that the test hypothesis has been rejected on the basis of the effect size [w2] and not the statistical significance of the test.

situational quantity variables. The variance explained in SEX (w2 = .04) by the set of situational quantity variables was less than the variance explained in the other group variables. In the set of situational frequency variables, the variance explained in SEX (w2 = .05) was also less than the variance explained in any of the other group variables.

The set of social drinking variables explained more of the variance in SEX (w2 = .09) than in MARITAL STATUS (w2 = .07), but explained the same variance in SEX (w2 = .09) than in AGE (w2 = .09), PARENTAL STATUS (w2 = .09) and SOCIO-ECONOMIC POSITION (w2 = 09). The variance explained in SEX (w2 = .08) by the set of individual quantity-frequency variables was less than the variance explained in AGE (w2 = .12) and SOCIO-ECONOMIC POSITION, but less than the variance explained in MARITAL STATUS (w2 = .03) and PARENTAL STATUS (w2 = .02).

Finally, it was hypothesized that SEX would not be the first function derived on each of the interactive group analyses. This hypothesis was specific to the interactive groups, and expected that SEX would not be the variable derived on the first (and most powerful) significant function. For the set of situational frequency variables, SEX was not derived on the first function for any of the interactive groups. The first significant functions derived for SEXAGE, SEXMAR and SEXSES were AGE, MARITAL STATUS, and SOCIO-ECONOMIC

POSITION respectively. However, it is unclear which variable is derived on the first function for SEXKIDS. These results indicate that the set of situational frequency variables are more efficient at discriminating among the other groups than between status consistent men and women. As well, SEX was not the first function derived for any of the interactive groups in the analysis of the set of situational quantity variables. This set of variables was also more efficient at discriminating among the other groups than between status consistent women and men.

The interactive groups analysis for the set of social drinking variables did not derive SEX on the first significant function for any of the interactive groups. However, the first discriminant function derived for SEXKIDS is unclear. The set of social drinking variables was more efficient at discriminating among the interactive groups than among status consistent women and men in this analysis.

The set of individual quantity-frequency variables derived SEX on the first significant function for SEXMAR and SEXKIDS only. This set of discriminating variables was more efficient at discriminating between status consistent men and women than between married and single persons, and between parents and non-parents.

Overall, the results of the discriminant analysis have failed to reject the hypothesis that women and men in

equivalent social positions have similar patterns of alcohol use. There were no substantive gender differences (w2 < .10) found in the set of situational frequency variables, in the set of situational quantity variables, in the set of social drinking variables or in the set of individual quantity-frequency variables. The variance explained (w2) between women and men was less than the variance explained among the other groups in set of situational frequency and situational quantity variables. In the set of social drinking variables, the variance explained in SEX was greater than the variance explained in MARITAL STATUS, but equivalent to that explained in AGE, PARENTAL STATUS and SOCIO-ECONOMIC POSITION. In the set of individual quantity-frequency indicators, the variance explained in SEX was greater than that explained in MARITAL STATUS and PARENTAL STATUS, but less than the variance explained in AGE and SOCIO-ECONOMIC POSITION. Finally, SEX was almost consistently derived on the second, less-powerful discriminant function for each of the four discriminating variable sets. This indicates that the variance in the interactive groups was explained by socio-demographic characteristics other than SEX.

11. Summary of Analyses of Group Variables

The results of the discriminant analyses reveal that the

four discriminating variable sets were more efficient at explaining the variance among the other group variables than between status consistent women and men. This section will discuss the individual groups and the results of the discriminant analyses of these groups.

AGE was a dichotomized group variable comprised of Younger (aged 15-29) and Older (30 and over) individuals. The Younger and Older individuals were substantively different in the set of situational frequency (w2 = .12), in the set of situational quantity (w2 = .13) and in the set of individual quantity-frequency (w2 = .12) of alcohol use. However, there was no substantive difference between Younger and Older individuals in the set of social drinking variables (w2 = .09). That is, Younger and Older individuals were not substantively different in their selection of drinking partners. For the most part, the differences in their drinking behaviour were due to the situation in which they drank alcohol and the amount they drank in each situation. Younger individuals drank more alcohol more frequently in bars or taverns, while Older individuals drank more alcohol more frequently at home.

MARITAL STATUS was a dichotomized variable comprised of Married (Married or living with a partner) and Single (Never-married) persons. There were no substantive differences between Married and Single persons for the set of social

drinking variables (w2 = .07) and for the set of individual quantity-frequency variables (w2 = .03). However, there were substantive differences between Married and Single persons for the set of situational frequency variables (w2 = .15) and the set of situational quantity variables (w2 = .14). Single persons drank predominantly in public--in bars or taverns, visiting others, and at dinners in restaurants--while Married persons generally drank at home and with visitors at their home. Marital status did not affect whom alcohol was consumed with as greatly as it affected where it was consumed.

PARENTAL STATUS was a dichotomized variable comprised of Parents (children under the age of 15 presently living in the home) and Non-parents (no children under the age of 15 presently living in the home). There were no substantive differences between Parents and Non-parents in the set of situational frequency variables, in the set of situational quantity variables, in the set of social drinking variables and in the set of individual quantity-frequency variables. Thus, the presence or absence of children under the age of 15 in the home had a minimal effect on differentiating drinking patterns in this group.

SOCIO-ECONOMIC POSITION was a trichotomized variable comprised of a High SES position, a Medium SES position and a Low SES position (see Chapter 2, page 31-2 for a description of these variables). For each of the discriminant variable

sets (with the exception of the set of social drinking variables) the greatest differences in patterns of alcohol use were found between the Low SES position and the High SES position (grouped with the Medium SES position). The set of social drinking variables did not substantively discriminate between the Low SES position (grouped with the Medium SES position) and the High SES position. The other three discriminant variable sets substantively discriminated the High SES group from the Low SES group as follows: the former drank more alcohol more frequently at dinners in restaurants, while the latter drank more alcohol more frequently in bars or taverns. As well, while the Low SES group consumed more alcohol in the past year, the High SES group consumed alcohol more frequently in the past year.

This section will now discuss the interactive groups analysis with some reference to the preceding discussion. The results of the discriminant analysis of the interactive groups (SEXAGE, SEXMAR, SEXKIDS, SEXSES) reveals that young, single men with no children in the home and in a High SES position and older, married women with children in the home and in a Low SES position are clearly defined as distinct and mutually opposing by the set of situational drinking variables. However, the second function of this analysis also reveals that men with children in the home are as distinct from women without children in the home as women with children in the

home are distinct from men without children in the home. In this instance, the interactive effect between gender and children in the home was not clearly defined.

The interactive group analysis for the set of situational quantity variables reveals that young, single men with children in the home and in a high SES position and older, married women with no children in the home and in a low SES position were clearly defined as distinct and mutually opposing groups. Thus, this group was very similar to the group defined by the set of situational frequency variables. The only exception was the effect of children in the home, which was reversed in this group, and was more clearly defined in alcohol consumption patterns. In this instance, women and men with children in the home were grouped closely together in opposition to women (and to a lesser extent men) without children in the home. Alcohol was still consumed despite the presence of children in the home, and its consumption was primarily at social events or when there are visitors in the home. The actual quantity and frequency of alcohol consumption will be discussed following the next section.

The interactive groups analysis for the set of social drinking variables reveals that the groups clearly defined as distinct and mutually opposing were younger, single men with no children in the home and older, married women with children in the home. Of particular interest in this interactive

analysis is that it was High SES women and Low SES women who were defined as most distinct and mutually opposing by the set of social drinking variables. In support of Hammer and Vaglum's (1989) findings, the results of this analysis indicate that High SES women are described by the number of times their spouses' drank, and Low SES women are described by the number of drinks that their spouses' consumed. It is interesting to note that the number of times a spouse drank also describes High SES men.

The interactive group analysis of the set of individual quantity-frequency variables reveals that young, single men with no children in the home and in a high SES position and older, married women with children in the home and in a low SES position were defined as the most distinct and mutually opposing groups.

In general, the interactive groups analysis can be summarized as follows: it is predominantly young, single men with no children in the home and in a high SES position and older, married women with children in the home and in a low SES position who were clearly defined as distinct and mutually opposing groups by the set of situational frequency variables, the set of situational quantity variables, the set of social drinking variables and the set of individual quantity-frequency variables. Thus, while the groups analysis revealed that there were no substantive differences between status

consistent men and women in their patterns of alcohol use, the interactive groups analysis revealed that when age, marital status, parental status and socio-economic position were accounted for, there were substantive differences between status consistent women and men. However, it is also evident that the differences in pattern of alcohol use found in the interactive analyses were due primarily to socio-demographic factors other than sex. This is evident in the fact that none of the four discriminant variable sets found any substantive differences between status consistent women and men and that SEX was not derived on the first and most powerful discriminant function in most of the discriminant analyses. The ability to predict differences in alcohol use patterns was increased by knowledge of the age, marital status and socio-economic status of the groups under investigation. The results of this analysis have found that there were no substantive differences in sex and parental status that would assist in differentiating patterns of alcohol use.

lll. Power-control theory

This study examined a variation in the convergence hypothesis based on Bonger's ([1916] 1969) proposition that where the social position of women approaches that of men, differences in the manner of their lives diminish. The

results of the discriminant analysis in this thesis tend to support Bonger's proposition when sex is the only variable examined. When drinking behaviours were analyzed by sex and age, marital status and socio-economic position, it became evident that despite the equivalent social positions between men and women, differences in the manner of their alcohol use became more evident. Thus, it is apparent that equivalency in social positions between women and men does not explain the differences in their alcohol use. In other words, there are specific interactions among the determinants of social position for men and women that continue to differentiate their alcohol use. The interactions among social status characteristics and their relationship to differentiating alcohol use by gender requires further investigation.

An earlier paper (Bergob, 1990) proposed a reformulation of power-control theory to account for gender and social class differences in alcohol use. This thesis was not an explicit empirical test of power-control theory, and the results cannot be considered a replication or verification of power-control theory's accuracy in predicting the results obtained herein. Power-control theory did anticipate gender differences in alcohol use due to the effect of gender-stratified processes of social control. However, this study expected that since both the men and the women in this sample were employed full-time in the public sphere of production, the same processes of

social control would effect them equally and result in no differences in their drinking behaviour. Indeed, the results indicate that the differences in behaviour between women and men were minimal, and predominantly smaller than the differences in almost any other variable tested.

At this point, power-control theory requires further consideration of the effect of social controls upon the social behaviour of women employed full-time in the public sphere of production. A reformulation of power-control theory to account for these effects and the enigmatic relationship between gender and social class differences in alcohol use should be considered in future research.

lV. Becker and Kronus Revisited

Since this study was predicated on the research of Becker and Kronus (1977), it is expedient to discuss the contribution of this research in consideration of the overall research problem. As previously mentioned, this study followed Becker and Kronus (1977) in methodology and in variable selection. This research extended Becker and Kronus's examination of gender differences in alcohol use with the introduction of a specific research problem, a theoretical framework and the new variables for analysis. Since this study was not intended as a replication of Becker and Kronus's research, the differences

that were found in this study do not refute their findings. Instead, the results of this research can be considered an intermediary step between Becker and Kronus's study and the next research project, which will be discussed in the next section. The discussion in this section will now turn to the comparison of this study with the research of Becker and Kronus.

In order to establish a common basis for comparison, the same criteria that was used to test the hypotheses in this study will be applied to the results of Becker and Kronus's analysis. Becker and Kronus used five sets of discriminating variables (positive motives, negative motives, situational frequency, all frequency, quantity-frequency). All five of the discriminant variable sets explained more than 10% of the variance between women and men ($w2 > .10$). As well, four of the five discriminating variable sets explained more of the variance in AGE, MARITAL STATUS and STUDENT STATUS than in SEX. Only the set of negative motive variables explained more of the variance in SEX ($w2 = .15$) than in AGE ($w2 = .13$), STUDENT STATUS ($w2 = .10$) and MARITAL STATUS ($w2 = .11$). Finally, in the interactive groups analysis, SEX was not derived on the first (and most powerful) significant function for the variable sets reported. It would appear that the sets of discriminating variables used by Becker and Kronus (1977:494) were less efficient at discriminating between women

and men than between the other groups. They thus concluded that patterns of alcohol use between women and men were more similar than previously expected and encountered in alcohol research.

Becker and Kronus (1977:494) found that when all other variables were controlled, women drank more often than men. In contrast, the results of this thesis found that men consumed more alcohol by total body water more frequently than did women. This supports Johnson's (1982) finding that men drink more in absolute terms and relative to their body weight. However, these differences were found for individual variables that were not sufficient to substantively discriminate between status consistent women and men as groups.

Differences in the results found here and those found in Becker and Kronus (1977) may be due to the failure of Becker and Kronus (1977) to standardize alcohol consumption by total body water for their sample. Their failure to control for this physiological difference between males and females may have exaggerated the size of the gender differences in drinking behaviour they found. Thus, standardization of alcohol consumption by total body water is strongly recommended for future research on gender differences in alcohol use.

This part of Section lV will discuss the results of this

study in relation to other alcohol studies discussed in Chapter 1. Previous research (Hammer and Vaglum, 1989; Johnson, 1982; Volicier et al., 1981) remarked on the differential effect of marital status and parental status on the patterns of alcohol use between women and men. In particular, Johnson (1982) identified an association between marital status and employment status for women that did not exist for men. Hammer and Vaglum (1989) examined marital status and isolated the effect of husband's drinking on women's drinking regardless of her employment status. This study was unable to examine this relationship due to the manner in which the groups were coded and the method by which they were analyzed. However, when the effect of children in the home was examined, it became apparent that the greatest proportion of the variance explained in alcohol use differences between parents and non-parents (social drinking, w2 = .09) was due to spouse's drinking habits. The non-parental group was described by the amount of alcohol their spouse's consumed, and the parental group was described by the number of times their spouse's drank and the number of times that they drank with their spouse. Indeed, the effect of spouse's drinking was also evident in discriminating among the other group variables.

Contrary to Volicier et al. (1981) the effect of children in the household was minimal in differentiating alcohol use

between women and men in this study. This may be due to the coding of the variables, their method of analysis, or the failure to include the actual number of children in the home in this study. An explanation, given with caution, for the minimal effect of children in the household in this analysis may be due to changes in the availability of child-care and/or to changes in the expectations of and experiences of women in the workforce. However, when Volicier et al. (1981) found a significant effect for children in the household on women's alcohol use, they did not account for the effects of a spouse's drinking, only the presence or absence of a spouse. Thus, when the effects of a spouse's drinking on women's alcohol use are examined, the effect of children in the household may diminish. These findings will be discussed in relation to the next study in Section V.

V. The Next Study

This final section of this thesis will discuss several points on how to enhance the present study. After each of these points is made there will be reasons given as to why these changes are beneficial, the difficulties that may be encountered in making these changes, and the results that can be expected. This discussion will begin with an evaluation of the value of further study of this research problem.

Since it is apparent that gender differences in alcohol use are prevalent, and persist despite changes in the social position of women, the first change made to the present study would be to re-define the research problem itself. Rather than focusing on a static and imprecise measure of social position, the focus of this study would be on the actual social relations of alcohol use. Thus, the problem that would be discussed in this study would be the effects of social relations in alcohol use patterns and behaviours. The purpose of this study would be to discover the inter-relations and causal mechanisms of alcohol use.

For instance, Hammer and Vaglum (1989) have found that a husbands' drinking can account for almost half the variance in their wives's drinking. Yet, this does not reveal who or what accounts for the other half, nor does this reveal who or what accounts for the variance in the drinking behaviour of women who are not married. As well, there is no indication of who accounts for the variance in the husband's drinking. There are also unanswered questions about the influence of partners in gay/lesbian couples, or couples who are only dating, or whether this relationship is constant across various cultural/ethnic groups.

The next change to the present study would be in the method of data collection. The method that would be used in the next study would be interviews. The reason for this is

because of the need to identify with whom individuals drink, and their affect on the respondent's own drinking behaviours. Also, interviewing the individuals identified as influential in the respondent's drinking behaviour would lead to the construction of an inter-connected network of social relations of alcohol use. An interview also allows the respondent to clarify their thoughts and feelings about particular relationships that influence their drinking behaviour. The social network that is identified by network analysis is a more accurate representation of an individual's social position than one identified by socio-demographic characteristics.

The use of interviews also allows the identification of specific sub-populations that survey methods fail to reveal. As previously mentioned, gay/lesbian couples are ignored in survey data, as are inter-racial couples, and couples who are only dating. Survey data also neglects to isolate the specific friends, relatives, or co-workers respondents drink with most often, and the social relations that exist among them.

A network analysis of the interview data would also reveal important differences in the social networks of women who work in the home versus women who work in the paid labour force, and the effect of children on these social networks. As well, it would be possible to compare single parent

families to two parent families, and to compare them to blended families and extended families, and to trace the influence of the family of orientation in the family of procreation.

However, there are specific problems with this method. The first is with obtaining individuals willing to be interviewed in this manner. Respondents may be unwilling to discuss their own drinking habits or those of individuals in their social network. The second is that the individuals identified in the respondents' network may decline an interview and the influences of the social relations would remain incomplete. Finally, the problem of mortality, of the respondents declining further information, or of changes in the structure of social relations among the individuals, may also affect the final results.

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Statistics Canada Statistique Canada

NADS 02

Confidential when completed "Statistics Act, Revised Statutes of Canada, 1985, Chapter S-19."

National Alcohol and Drug Survey

1: ___ - ___ - ____ Telephone number

4: ___ Stratum

5: ____ Sequence number

Interviewer Name: _____

INTRODUCTION

This survey is being conducted by Statistics Canada for Health and Welfare Canada. Your answers will help us better understand and deal with alcohol and drug use. While your participation is voluntary, it is essential to ensure that the results represent all Canadians. All your answers will be kept strictly confidential.

1. Would you prefer to be interviewed in English or French?

   1 ○ English 2 ○ French → *(Go to french questionnaire or make appointment)*

2. In general, compared to other persons your age would you say your health is...

   1 ○ Excellent?
   2 ○ Very Good?
   3 ○ Good?
   4 ○ Fair?
   5 ○ Poor?

3. During the past 12 months would you describe your life as...

   1 ○ Very stressful?
   2 ○ Fairly stressful?
   3 ○ Not very stressful?
   4 ○ Not at all stressful?

4. Over the past 12 months when you needed help or had a problem, how supportive or helpful were your family or friends? Were they...

   1 ○ Very helpful?
   2 ○ Helpful?
   3 ○ Somewhat helpful?
   4 ○ Not helpful?
   5 ○ N/A, do not need family or friends

5. What is your current marital status? Are you...

   1 ○ legally married (and not separated)? → *go to 7*
   2 ○ separated?
   3 ○ divorced?
   4 ○ widowed?
   5 ○ never married?

6. Are you currently living with a partner?

   1 ○ Yes 2 ○ No

TOBACCO CONSUMPTION

7. Now I'd like to ask you some questions about smoking.

   Have you ever been a cigarette smoker?

   1 ○ Yes 2 ○ No → *go to 12*

8. How old were you when you started smoking?

   ☐☐

9. At the present time do you smoke cigarettes?

   1 ○ Yes → *go to 11* 2 ○ No

10. In which year did you stop smoking?

    1 9 ☐☐ year

11. How many cigarettes do/did you usually smoke per day?

    ☐☐ OR 1 ○ Do/did not smoke every day

ALCOHOL CONSUMPTION

12. The next few questions are about alcohol. In these questions when we use the word drink it means:

    — one bottle of beer or glass of draft
    — one glass of wine or a wine cooler
    — one straight or mixed drink with one ounce and a half of hard liquor

    During the past 12 months have you had a drink of any alcoholic beverage?

    1 ○ Yes → *go to 18* 2 ○ No

Canada

13. There are many reasons to limit one's drinking or avoid drinking altogether. What are your reasons for not drinking?

- [01] ○ health reasons, not healthy
- [02] ○ don't like the taste
- [03] ○ don't like the effect it has on me
- [04] ○ I have seen bad examples of what alcohol can do
- [05] ○ for diet reasons, in athletic training
- [06] ○ I am afraid I will become dependent on alcohol
- [07] ○ drinking could affect my job
- [08] ○ waste of money
- [09] ○ religious reasons
- [10] ○ brought up not to drink
- [11] ○ alcoholic or had alcohol problem
- [12] ○ other

14. How often during the past 12 months did you participate in the following activities?

	Less than once a month	1–3 times a month			
	A few times a year	A few times a month	Once a week	More than once a week	Never
a) Spend a quiet evening at home	[01] ○	[02] ○	[03] ○	[04] ○	[05] ○
b) Spend time at someone else's home	[06] ○	[07] ○	[08] ○	[09] ○	[10] ○
c) Have friends or relatives visit your home	[11] ○	[12] ○	[13] ○	[14] ○	[15] ○
d) Go to a restaurant in the evening (excluding fast food)	[16] ○	[17] ○	[18] ○	[19] ○	[20] ○
e) Go to a restaurant for lunch (excluding fast food)	[21] ○	[22] ○	[23] ○	[24] ○	[25] ○
f) Go to a bar/tavern	[26] ○	[27] ○	[28] ○	[29] ○	[30] ○
g) Go to a club or a meeting	[31] ○	[32] ○	[33] ○	[34] ○	[35] ○

15. How many times during the past 12 months did you participate in the following special occasions or seasonal activities?

	Less than 12 times	12–51 times	52 times	More than 52 times	
	A few times a year	A few times a month	Once a week	More than once a week	Never
a) Leisure activities such as being at a cottage, camping or boating	[01] ○	[02] ○	[03] ○	[04] ○	[05] ○
b) Sports activities such as skiing, softball or golf	[06] ○	[07] ○	[08] ○	[09] ○	[10] ○
c) Attend a party, social gathering or wedding	[11] ○	[12] ○	[13] ○	[14] ○	[15] ○
d) Go to a concert, sports event or festival	[16] ○	[17] ○	[18] ○	[19] ○	[20] ○

16. Did you ever drink alcoholic beverages regularly?

1 ○ Yes ⟶ *go to 37*

2 ○ No

17. Does this mean that you have never had a drink?

1 ○ Yes
2 ○ No
} *go to 48*

18. I'm going to read several statements about the reasons why people drink. For each tell me if it is a reason you drink. Do you drink...

	Yes	No
a) To be sociable?	1 ○	2 ○
b) To add to the enjoyment of meals?	3 ○	4 ○
c) To feel good?	5 ○	6 ○
d) To help you relax?	7 ○	8 ○
e) To forget worries?	9 ○	10 ○
f) To feel less inhibited or shy?	11 ○	12 ○

19. During the past 12 months how often on average did you drink alcoholic beverages? Was it...

1 ○ everyday?

2 ○ 4–6 times a week?

3 ○ 2–3 times a week?

4 ○ once a week?

5 ○ 1–3 times a month?

6 ○ less than once a month?

20. On the days when you drank how many drinks did you usually have?

☐☐ number of drinks

21. What types of alcoholic beverages do you usually drink? *(mark all that apply)*

1 ○ beer

2 ○ light beer

3 ○ wine

4 ○ wine coolers

5 ○ straight liquor

6 ○ mixed liquor

7 ○ other

22. How many times in the past 12 months have you had FIVE or more drinks on one occasion?

☐☐☐

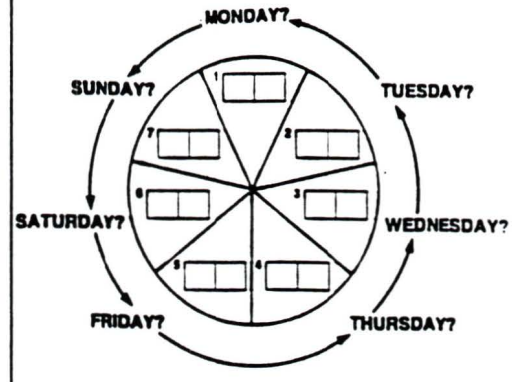
23. In the past 12 months, what is the highest number of drinks you can recall having on any one occasion?

☐☐

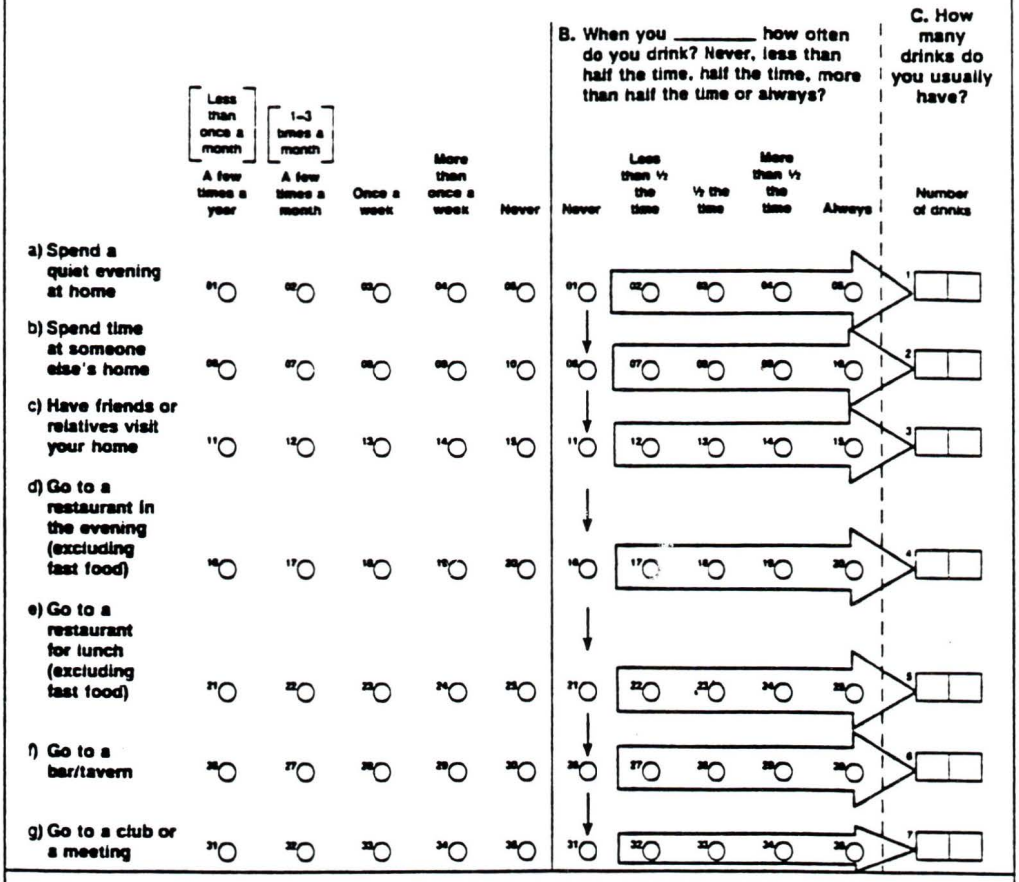
24. Thinking back over the last 7 days, starting with yesterday, how many drinks did you have on each day?

1 ○ None at all ⟶ *go to 25*

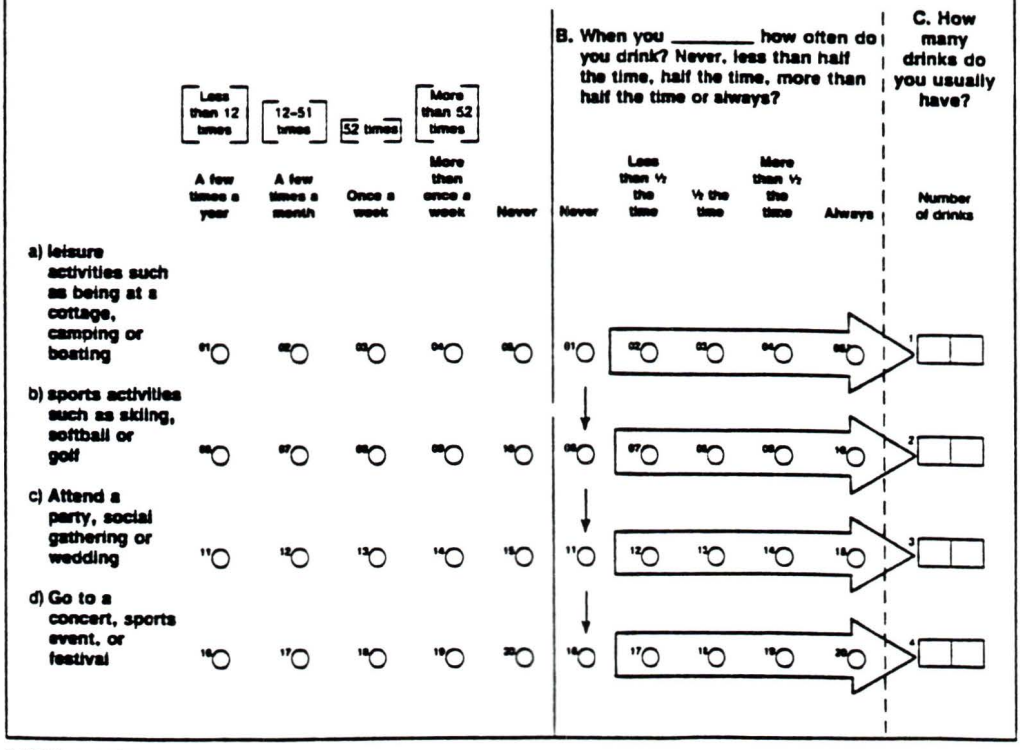
How many drinks did you have on...



25. How often during the past 12 months did you participate in the following activities?



26. How many times during the past 12 months did you participate in the following special occasions or seasonal activities?



27. During the past 12 months, how often did you drink...

	Never	Less than once a month	1–3 times a month	Once a week	More than once a week
		A few times a year	A few times a month		
a) with friends?	01	02	03	04	05
b) with your spouse/ partner?	06	07	08	09	10
(If respondent is not married or living with a partner do not ask, and mark 'never')					
c) with family members or relatives?	11	12	13	14	15
d) with co-workers?	16	17	18	19	20
e) by yourself or when others were not drinking?	21	22	23	24	25

28. As the price of alcoholic beverages has increased, have you...

	Yes	No
a) cut down the amount you drink (buy)?	01	02
b) switched to a cheaper brand?	03	04
c) made your own?	05	06
d) drank at home instead of going out to drink?	07	08
e) bought more duty free liquor whenever possible?	09	10
f) looked for occasions when drinks were free?	11	12

29. In the past 12 months, have you been invited to have a drink by any of the following?

	Yes	No
a) your spouse/partner *(If respondent is not married or living with a partner do not ask, and mark 'no')*	1	2
b) a family member or relative	3	4
c) a friend	5	6
d) a co-worker	7	8

30. In the past 12 months, have you taken a drink to please anyone although you did not feel like drinking?

1 Yes 2 No → *go to 31*

Was it to please...

	Yes	No
a) your spouse/partner? *(If respondent is not married or living with a partner, do not ask, and mark 'no')*	1	2
b) a family member or relative?	3	4
c) a friend?	5	6
d) a co-worker?	7	8

31. In the past 12 months, has there been an occasion when you would have liked to take a drink but did not in order to please anyone?

1 Yes 2 No → *go to 32*

Was it to please...

	Yes	No
a) your spouse/partner? *(If respondent is not married or living with a partner do not ask, and mark 'no')*	1	2
b) a family member or relative?	3	4
c) a friend?	5	6
d) a co-worker?	7	8

32. Do you drive a motor vehicle?

1 Yes 2 No → *go to 35*

33. In the past 12 months have you been in a motor vehicle accident with you as the driver, even if it wasn't your fault?

1 Yes 2 No

34. In the past 12 months, how many times have you driven after having two or more drinks in the previous hour?

☐☐ number of occurrences

35. Have you ever had any contact with the police as a result of your drinking?

'○ Yes '○ No

36. Was there ever a time that you felt your alcohol use had a harmful effect on...

		Was this during the past 12 months? Yes	No
a) your friendships or social life?	01○ Yes →	01○	02○
	02○ No		
b) your physical health?	03○ Yes →	03○	04○
	04○ No		
c) your outlook on life (happiness)?	05○ Yes →	05○	06○
	06○ No		
d) your home life or marriage?	07○ Yes →	07○	08○
	08○ No		
e) your work, studies or employment opportunities?	09○ Yes →	09○	10○
	10○ No		
f) your financial position?	11○ Yes →	11○	12○
	12○ No		

37. Have you ever stopped drinking altogether for a period of time?

'○ Yes '○ No → *go to 40*

38. When was the last time? Was it...

'○ within the past 12 months?

'○ 1–5 years ago?

'○ over 5 years ago?

39. How long did it last?

'○ still continuing

'○ less than 1 month

'○ 1–3 months

'○ 4–6 months

'○ 7–11 months

'○ 1–2 years

'○ 3–5 years

'○ more than 5 years

40. Have you ever reduced or cut down the amount you drink without quitting completely?

'○ Yes → *go to 42* '○ No

41. *INTERVIEWER CHECK ITEM:*

'○ *If 'No' in 37 and 'No' in 40 go to 46*

'○ *Otherwise go to 44*

42. When was the last time? Was it...

'○ within the past 12 months?

'○ 1–5 years ago?

'○ over 5 years ago?

43. How long did it last?

'○ still continuing

'○ less than 1 month

'○ 1–3 months

'○ 4–6 months

'○ 7–11 months

'○ 1–2 years

'○ 3–5 years

'○ more than 5 years

44. Why did you reduce drinking or quit drinking altogether?

	Yes	No
a) for reasons such as pregnancy, dieting, athletic training, etc.	01○	02○
b) because you were getting older	03○	04○
c) you thought you were drinking too much/or had a drinking problem	05○	06○
d) it was affecting your work, studies or employment opportunities	07○	08○
e) it was interfering with your family or home life	09○	10○
f) it was affecting your physical health	11○	12○
g) it was affecting your friendships or social life	13○	14○
h) it was affecting your financial position	15○	16○
i) it was affecting your outlook on life, happiness	17○	18○
j) because of influence from your family or friends	19○	20○

45. Which of the following things did you do to reduce the amount you drink, or to quit altogether?

	Yes	No
a) Skip parties or other social events?	01 ○	02 ○
b) Avoid being with friends who drink a lot?	03 ○	04 ○
c) Go to bars and taverns less often?	05 ○	06 ○
d) Limit the number of drinks you have?	07 ○	08 ○
e) Change what you drink? (eg. changed to soft drinks or light beer)	09 ○	10 ○
f) Get involved in activities that do not include drinking?	11 ○	12 ○

46. There are many services and help for people concerned about drinking. Have you ever used any of the services or help offered for yourself?

1 ○ Yes 2 ○ No ⟶ *go to 48*

47. Which services or help did you use?

01 ○ family member/friend

02 ○ A.A. (Alcoholics Anonymous), Al-Anon, support group

03 ○ psychologist, psychiatrist, social worker

04 ○ psychiatric hospital

05 ○ minister, priest, rabbi

06 ○ doctor, nurse

07 ○ hospital, emergency department

08 ○ alcohol/drug addiction agency

09 ○ detox (detoxification) centre, halfway house

10 ○ other

48. *INTERVIEWER CHECK ITEM:*

1 ○ *If legally married or living with partner (1 in Q5 or 1 in Q6), go to 49*

2 ○ *Otherwise, go to 51*

49. Thinking about the past 12 months, how often has your spouse/partner had a drink? Was it...

1 ○ everyday?

2 ○ 4–6 times a week?

3 ○ 2–3 times a week?

4 ○ once a week?

5 ○ 1–3 times a month?

6 ○ less than once a month?

7 ○ don't know

8 ○ never? ⟶ *go to 51*

50. On the days when he/she drank, how many drinks did he/she usually have?

☐☐ number of drinks

51. Now I'll describe situations that people sometimes find themselves in. For each one, please tell me how much a person in that situation should feel free to drink.

	Should there be...				
	No drinking?	1–2 drinks?	Enough to feel the effects?	Getting drunk is sometimes OK?	Don't know
a) at a party, at someone else's home?	01 ○	02 ○	03 ○	04 ○	05 ○
b) for a man out at a bar with friends?	06 ○	07 ○	08 ○	09 ○	10 ○
c) for a woman out at a bar with friends?	11 ○	12 ○	13 ○	14 ○	15 ○
d) for a couple having dinner at home?	16 ○	17 ○	18 ○	19 ○	20 ○
e) for co-workers out to lunch?	21 ○	22 ○	23 ○	24 ○	25 ○
f) with friends at your home?	26 ○	27 ○	28 ○	29 ○	30 ○
g) when getting together with friends after work before going home?	31 ○	32 ○	33 ○	34 ○	35 ○
h) when getting together with people for sports events or recreation?	36 ○	37 ○	38 ○	39 ○	40 ○

	Yes	No	Don't know/ N/A
52. a) Have you ever spoken to somebody at work because drinking was affecting their performance?	1	2	3
b) Have you ever driven/or arranged for transportation to take someone home from a party because you thought they had too much to drink?	4	5	6
c) Have you ever called the police after seeing a drunk person get behind the wheel or drive dangerously?	7	8	9

53. The next few questions are about your experience with other people's drinking problems. Have you ever...

		Was this during the past 12 months? Yes	No
a) Been insulted or humiliated by someone who had been drinking?	01 Yes	01	02
	03 No		
b) Had serious arguments or quarrels as a result of someone else's drinking?	02 Yes	02	04
	04 No		
c) Had friendships break up as a result of someone else's drinking?	05 Yes	05	06
	06 No		
d) Had family problems or marriage difficulties due to someone else's drinking?	07 Yes	07	08
	08 No		
e) Been a passenger with a driver who had too much to drink?	09 Yes	09	10
	10 No		
f) Been in a motor vehicle accident because of someone else's drinking?	11 Yes	11	12
	12 No		
g) Had your property vandalized by someone who had been drinking?	13 Yes	13	14
	14 No		
h) Been pushed, hit or assaulted by someone who had been drinking?	15 Yes	15	16
	16 No		
i) Been disturbed by loud parties or the behaviour of people drinking?	17 Yes	17	18
	18 No		
j) Had financial trouble because of someone else's drinking?	19 Yes	19	20
	20 No		

54.

		Was this during the past 12 months? Yes	No
a) Has your spouse/ partner ever had a drinking problem? *(If respondent is not married or living with a partner do not ask, and mark 'no')*	1 Yes	1	2
	2 No		
b) Has a family member or relative ever had a drinking problem?	3 Yes	3	4
	4 No		
c) Have you ever had a friend with a drinking problem?	5 Yes	5	6
	6 No		
d) Have you ever known a co-worker who had a drinking problem?	7 Yes	7	8
	8 No		

55. *INTERVIEWER CHECK ITEM:*

1 *If all 'NO' in 54, go to 58*

2 *If one or more 'yes' responses, refer to the first 'yes' in 54 when asking questions 56 and 57.*

56. Did you do any of the following because of your _____'s drinking problem? Did you...

	Yes	No	
a) avoid the person?	1	2	
b) give advice?	3	4	
c) suggest they seek professional help or help them to get assistance?	5	6	→ *go to 58*

57. Which services or help did you suggest?

01 family member/friend

02 A.A.(Alcoholics Anonymous), Al-Anon, support group

03 Psychologist, psychiatrist, social worker

04 psychiatric hospital

05 minister, priest, rabbi

06 doctor, nurse

07 hospital, emergency department

08 alcohol/drug addiction agency

09 detox (detoxification) centre, halfway house

10 other

58. The next few questions refer to the use of medicines and pills in the last 30 days.

INTERVIEWER CHECK ITEM: If respondent is a non-drinker (No to Q12) do not ask Part C.

	A. In the past 30 days did you take any of the following medications?	B. Was this with a doctor's order or prescription?	C. Did you consume any alcoholic beverages while using this medication?
a)	aspirin or similar pain reliever (includes arthritis medicine)	[01] Yes → [01] Yes [02] No	[01] Yes [02] No
	[02] No		
b)	tranquilizers such as valium	[03] Yes → [03] Yes [04] No	[03] Yes [04] No
	[04] No		
c)	diet pills or stimulants	[05] Yes → [05] Yes [06] No	[05] Yes [06] No
	[06] No		
d)	anti-depressants	[07] Yes → [07] Yes [08] No	[07] Yes [08] No
	[08] No		
e)	codeine, demerol, morphine	[09] Yes → [09] Yes [10] No	[09] Yes [10] No
	[10] No		
f)	allergy medicine such as sinutab	[11] Yes → [11] Yes [12] No	[11] Yes [12] No
	[12] No		
g)	cough or cold remedies	[13] Yes → [13] Yes [14] No	[13] Yes [14] No
	[14] No		
h)	penicillin or similar antibiotics	[15] Yes → [15] Yes [16] No	[15] Yes [16] No
	[16] No		
i)	medicine for the heart or blood pressure	[17] Yes → [17] Yes [18] No	[17] Yes [18] No
	[18] No		
j)	insulin or similar diabetic medicine	[19] Yes → [19] Yes [20] No	[19] Yes [20] No
	[20] No		
k)	sleeping pills	[21] Yes → [21] Yes [22] No	[21] Yes [22] No
	[22] No		
l)	stomach remedies, laxatives	[23] Yes → [23] Yes [24] No	[23] Yes [24] No
	[24] No		

59. Have you ever used any of the following?

		B. Have you used it in the past 12 months? Yes	No
a) Marijuana or hash	01 Yes →	01	02
	02 No		
b) Cocaine or crack	03 Yes →	03	04
	04 No		
c) LSD (acid)	05 Yes →	05	06
	06 No		
d) Speed (amphetamines)	07 Yes →	07	08
	08 No		
e) Heroin	09 Yes →	09	10
	10 No		

IF ALL NO IN 59 GO TO 68

60. There are many services and help for people concerned about drugs. Have you ever used any of the services or help offered for yourself?

1 Yes 2 No

61. Have you ever had any contact with the police as a result of your drug use?

1 Yes 2 No

62. *INTERVIEWER CHECK ITEM:*

1 *If respondent has used marijuana in the past 12 months ('yes' to second part of 59a) go to 63*

2 *Otherwise, go to 68*

63. I'm going to read several statements about the reasons why people use marijuana or hash. For each tell me if that is a reason you have for using marijuana.

	Yes	No
a) To feel high	01	02
b) To relax	03	04
c) To forget worries	05	06
d) To be sociable	07	08
e) To feel less inhibited or shy	09	10
f) To see what it was like	11	12

64. How often have you used marijuana or hash in the past 12 months?

1 less than once a month

2 1–3 times a month

3 once a week

4 more than once a week

65. During the past 12 months have you used marijuana or hash in the following places?

	Yes	No
a) at a bar/tavern	01	02
b) at a private home	03	04
c) at school/university	05	06
d) at a party or social gathering	07	08
e) at a concert, sports event, festival, etc.	09	10
f) outdoors: while boating, camping, skiing, fishing	11	12

66. Have you used marijuana or hash with the following people during the last 12 months?

	Yes	No
a) with your spouse/partner *(If respondent is not married or living with a partner do not ask, and mark 'no')*	01	02
b) with a family member or relative	03	04
c) with friends	05	06
d) with co-workers	07	08
e) while alone	09	10

67. In the past 12 months have you driven within two hours of using marijuana/hash?

1 Yes 2 No

68. The next few questions concern problems with the use of illegal drugs or prescription drugs which may have been experienced by others.

	Yes	No
a) Has your spouse/partner ever had a drug problem? *(If respondent is not married or living with a partner do not ask, and mark 'no')*	1	2
b) Has a family member or relative ever had a drug problem?	3	4
c) Have you ever had a friend with a drug problem?	5	6
d) Have you ever known a co-worker who had a drug problem?	7	8

69. *INTERVIEWER CHECK ITEM:*

[1] ○ *If all 'NO' in 68 ⟶ go to 72.*

[2] ○ *If one or more 'YES' responses refer to the first 'YES' in 68 when asking questions 70 and 71.*

70. Did you do any of the following because of your _____'s drug problem? Did you...

	Yes	No
a) avoid the person? ..	[1] ○	[2] ○
b) give advice?	[3] ○	[4] ○
c) suggest they seek professional help or help them to get assistance?	[5] ○	[6] ○ ⟶ *go to 72*

71. Which services or help did you suggest?

[01] ○ family member, friend

[02] ○ A.A.(Alcoholics Anonymous), Al-Anon, support group, Narcotics Anonymous

[03] ○ psychologist, psychiatrist, social worker

[04] ○ psychiatric hospital

[05] ○ minister, priest, rabbi

[06] ○ doctor, nurse

[07] ○ hospital, emergency department

[08] ○ alcohol/drug addiction agency

[09] ○ detoxification (detox) centre, half-way house

[10] ○ other

72. Have any of the following situations ever happened to you?

	Yes	No
a) Have there been times when you would have welcomed more details from your pharmacist or doctor about side-effects of medication?	[1] ○	[2] ○
b) Have you ever expressed concern to a friend or relative about their use of prescription drugs?	[3] ○	[4] ○
c) Have you ever contacted the police because you knew of someone using drugs?	[5] ○	[6] ○
d) Have you ever suggested to a friend that they stop using drugs?	[7] ○	[8] ○

73. Now we have just a few more questions to ask on how you feel about laws concerning alcohol and drugs. Do you think...

	Increase	Decrease	Same	Don't know
a) Taxes on alcoholic beverages should be increased, decreased or remain the same?	[01] ○	[02] ○	[03] ○	[04] ○
b) Beer and liquor store hours should be increased, decreased or remain the same?	[05] ○	[06] ○	[07] ○	[08] ○
c) The legal drinking age should be raised, lowered or remain the same?	[09] ○	[10] ○	[11] ○	[12] ○
d) Efforts to prevent drunken customers being served should be increased, decreased or remain the same?	[13] ○	[14] ○	[15] ○	[16] ○
e) Government's advertising against drinking should be increased, decreased or remain the same?	[17] ○	[18] ○	[19] ○	[20] ○
f) Alcohol or drug education and prevention programs should be increased, decreased or remain the same?	[21] ○	[22] ○	[23] ○	[24] ○
g) Treatment programs should be increased, decreased or remain the same?	[25] ○	[26] ○	[27] ○	[28] ○

74. Do you think alcoholic beverages should be available in the corner stores?

[1] Yes [2] No [3] Don't know

75. Do you think alcoholic beverages should have warning labels about possible health hazards?

[1] Yes [2] No [3] Don't know

76. Should the government prohibit wine, liquor and beer advertising on T.V.?

[1] Yes [2] No [3] Don't know

77. Should the government prohibit wine/liquor/beer companies from sponsoring sporting or cultural events?

[1] Yes [2] No [3] Don't know

78. We would like your opinion about programs to reduce problems with alcohol, abuse of medication, and illegal drug use. Do you think...

	Very effective	Moderately effective	Not at all effective	Don't know/ No opinion
a) self help programs such as AA, are very effective, moderately effective, not effective at all? ..	[01]	[02]	[03]	[04]
b) emergency telephone services are very effective, moderately effective, not effective at all? ..	[05]	[06]	[07]	[08]
c) community prevention efforts such as providing workshops and information on alcohol and drugs are very effective, moderately effective, not effective at all? ..	[09]	[10]	[11]	[12]
d) treatment by social workers or medical staff in the area of alcohol and drugs are very effective, moderately effective, not effective at all? ..	[13]	[14]	[15]	[16]

79. The possession of marijuana is currently illegal in Canada. Do you think a person should get a criminal record if he/she is caught possessing marijuana?

[1] Yes [2] No [3] Don't know

80. Do the following problems exist in your community or neighbourhood enough for you to be concerned?

	Yes	No
a) drinking and driving?	[01]	[02]
b) family conflicts related to alcohol use?	[03]	[04]
c) public fights or disturbances from alcohol use?	[05]	[06]
d) alcohol related health problems?	[07]	[08]
e) problems in the workplace due to alcohol use?	[09]	[10]
f) misuse of prescription drugs and over the counter drugs?	[11]	[12]
g) illegal drug use or criminal activity due to alcohol or drugs? .	[13]	[14]

81. Now I would like to ask you a few questions about yourself.

How much do you currently weigh?

[1] ☐☐☐ pounds OR [2] ☐☐☐ kilograms

82. How tall are you?

[1] ☐ ☐☐ feet inches OR [2] ☐☐☐ centimetres

83. What is the highest grade or level of education you have ever completed?

[1] No schooling
[2] Elementary
[3] Some } secondary
[4] Completed }
[5] Some } community college, technical college, CEGEP, nurse's training
[6] Completed }
[7] Some } university or teacher's college
[8] Completed }
[9] Other education or training

84. Which of the following best describes your main activity during the past 12 months? Were you mainly...

[1] Working at a job or business → *go to 86*
[2] Looking for work → *go to 85*
[3] A student }
[4] Retired } *go to 88*
[5] Keeping house }
[6] other }

85. Did you have a job at any time during the past 12 months?

1 ○ Yes 2 ○ No ⟶ *go to 88*

86. What kind of business, industry or service is/was it that you work/worked for?

87. What kind of work do/did you do?

88. In the past FIVE years, have you been continuously unemployed for a year or longer (that is not being paid for work but looking for work)?

1 ○ Yes 2 ○ No

89. What language do you speak at home now *(if more than one language, which is spoken most often)*?

1 ○ English
2 ○ French
3 ○ German
4 ○ Italian
5 ○ Chinese
6 ○ Other

90. Which ethnic or cultural group do you belong to?

01 ○ Canadian
02 ○ French
03 ○ English (British)
04 ○ German
05 ○ Scottish
06 ○ Irish
07 ○ Italian
08 ○ Ukrainian
09 ○ Dutch
10 ○ Chinese
11 ○ Jewish
12 ○ Polish
13 ○ Portugese
14 ○ Other

91. What if any is your religion?

01 ○ None ⟶ *go to 93*
02 ○ Roman Catholic
03 ○ United Church
04 ○ Anglican
05 ○ Presbyterian
06 ○ Baptist
07 ○ Pentecostal
08 ○ Lutheran
09 ○ Greek Orthodox
10 ○ Ukrainian Catholic
11 ○ Jewish
12 ○ Jehovah's Witness
13 ○ Mennonite
14 ○ Islam
15 ○ Hindu
16 ○ Other

92. Do you consider yourself to be very religious, moderately religious, or not very religious?

1 ○ Very religious
2 ○ Moderately religious
3 ○ Not very religious

93. Are there any children under 15 living in the household?

1 ○ Yes 2 ○ No

How many are...

5 years old or less? 1 ☐☐

6 to 11 years old? 2 ☐☐

12 to 14 years old? 3 ☐☐

94. What was your household's total income from all sources before taxes and deductions for 1988? Was it...

- 10 ○ Less than $20,000
  - 11 ○ Less than $10,000
    - 13 ○ Less than $5,000
    - 14 ○ $5,000 or more
  - 12 ○ $10,000 or more
    - 15 ○ Less than $15,000
    - 16 ○ $15,000 or more
- 20 ○ $20,000 or more
  - 21 ○ Less than $40,000
    - 23 ○ Less than $30,000
    - 24 ○ $30,000 or more
  - 22 ○ $40,000 or more
    - 25 ○ Less than $60,000
    - 26 ○ $60,000 or more

97 ○ no income

98 ○ don't know

95. How many household members contributed to this income?

1 ○ one

2 ○ two

3 ○ three

4 ○ four or more

THANK RESPONDENT

Comments:

. Appendix B: Univariate Statistics for Discriminant Variables.

Situational Frequency - Number of Times Drank at:

	Mean	S.D.	Minimum	Maximum	Skewness	Valid N
a quiet evening at home	26.06	34.95	0	156	1.87	994
someone's home:	16.77	24.27	0	156	2.98	992
home with visitors:	17.33	25.63	0	156	3.05	990
a restaurant in evening:	11.66	22.35	0	156	3.87	991
a restaurant for lunch:	3.16	13.60	0	156	7.22	993
a bar/tavern:	17.30	35.70	0	156	3.00	993
a club or meeting:	3.69	14.12	0	156	6.66	993
leisure activities:	5.30	14.22	0	156	6.76	993
sports activities:	6.03	19.61	0	156	4.90	990
social gatherings:	6.26	11.07	0	156	8.43	993
concerts/sports events:	1.36	5.18	0	117	13.48	993

Situational Quantity - Number of Drinks Last Year at:

a quiet evening at home:	72.04	208.69	0	3120	8.95	991
someone's home:	48.61	118.65	0	1872	7.78	988
home with visitors:	50.95	114.40	0	1872	7.20	989
a restaurant in evening:	21.53	55.89	0	624	6.60	988
a restaurant for lunch:	5.05	31.88	0	624	13.08	990
a bar/tavern:	85.97	264.11	0	3900	7.76	987
a club or meeting:	11.73	70.41	0	1170	11.72	991
leisure activities:	22.17	90.36	0	1872	12.57	992
sports activities:	13.91	54.35	0	702	7.16	988
social gatherings:	27.07	63.66	0	1092	8.97	990
concerts/sports events:	4.58	23.76	0	468	12.15	988

-continued-

. Appendix B: Univariate Statistics for Discriminant Variables, continued.

Social Drinking - Number of Times Drank with:

	Mean	S.D.	Minimum	Maximum	Skewness	Valid N
Friends:	32.32	42.00	0	156	2.19	994
Spouse/Partner:	17.03	34.77	0	156	3.06	994
Family/Relative:	13.02	21.20	0	156	4.61	992
Co-Workers:	12.45	27.40	0	156	4.06	993
Alone:	11.00	32.16	0	156	3.85	993
# Times Spouse drank:	26.44	61.79	0	365	3.64	995
# Drinks Spouse drank:	66.77	188.70	0	2190	6.01	987
Individual Quantity-Frequency:						
# Times had 5 or more drinks:	2.86	1.86	1	6	0.56	990
Highest # of drinks at once:	2.37	1.36	1	5	0.65	977
# Times drank alcohol in the past 12 months:	79.72	89.55	6	365	1.68	994
# Drinks in the past 12 months:	308.70	579.33	6	7300	6.11	989
Total drinks over the last week:	4.44	8.40	0	102	5.78	996
# Day respondant drank in the week:	1.38	1.75	0	7	1.60	996
Average # drinks per day in the past week:	0.60	1.25	0	15	5.56	996

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Title of Thesis: A MULTI-VARIATE DISCRIMINANT ANALYSIS OF A VARIATION IN THE CONVERGENCE HYPOTHESIS.

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