A Study on the Drinking Patterns of Male and Female Employees in Alberta: The Impact of Work Environment and Job Stress

By

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Abstract

This dissertation seeks to understand the relationships between the workplace culture, job stress, and drinking patterns among a sample of Alberta employees. Limited research exists on this topic, especially when considering the use of alcohol by the workforce both in general (i.e., outside of work) and more specifically during the workday. Given that alcohol is the most widely used and misused substance in the workforce, it is essential to examine the reasons for which employees consume alcohol.

Data for the current project were obtained from the Alberta Alcohol and Drug Abuse Commission's 2002 survey on substance use in the workplace. A total of 1,890 respondents, representing 67% of all survey participants, answered questions regarding their pattern of alcohol use in the twelve months preceding the survey. Using multinomial logistic regression to analyze results, the best predictors for increased alcohol consumption were determined.

The results clearly demonstrate that the ease at which employees can access alcohol has the greatest influence on the manner in which they drink- it was an unfailing predictor for both men and women. Results from this dissertation however, do not support earlier research indicating members of male-dominated occupations experience increased drinking more than female-dominated positions. Furthermore, the current results also show no significant relationships between perceived job stress and alcohol use. The personal assessments of stress do not directly result in increased self-reported alcohol use, although it was found that job characteristics contributing to job stress do affect alcohol consumption in certain circumstances. These findings emphasize the importance of job characteristics as predictors for drinking, and more specifically, the influence that the workplace has on the drinking patterns of its employees.

When considering other substance use (e.g., marijuana and tobacco), it was shown that the ease at which male employees access marijuana, affects how often they consume it. Gender composition of an occupation was found to affect both male and female tobacco use, particularly when examining moderate and heavy smokers.

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There is one question that most, if not all doctoral candidates dread to hear: *When will you be done your thesis?* I am thrilled to never have to hear this question again!

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There has been a seemingly increased interest in alcohol use and the workplace as presented through the media. Almost simultaneously, there has also been a focus on the issue of stress. Despite this *coincidence,* an examination of the relationship between these three factors has been lacking not only in our daily news, but also in academic research.

Alcohol consumption, alcohol problems and dependence are serious issues in terms of health, work productivity and interpersonal relationships. Alcohol use by employees results in significant social and economic costs associated with lowered productivity, increased absenteeism and impaired job performance (Roman, 1990). Annual productivity losses in Canada due to alcohol abuse have been estimated at $7.1 billion (Rehm, et al., 2006). In Alberta in 2002, it is estimated that the financial cost

due to missed days and lost productivity from alcohol was $51.18 million dollars, which translates into almost 3 million lost work hours (Malatest & Associates, 2003).

In many of the ways alcohol can affect the health and efficiency of its employees, so too can the impact of workplace stress. Prolonged stress can lead to absenteeism as well as a decline in productivity. It has been estimated that stress-related absences cost Canadian employers approximately $3.5 billion each year (Williams, 2003).

There are important and newly emerging trends occurring in the workplace. Since World War II, employment statistics of industrial countries show an increase in the proportion of married women working outside the home (Crompton & Sanderson 1990; Hakim, 1996), and women now constitute over one-third of the paid labour force (Doyal, 1995). Moreover, there has been a steady convergence of men and women's employment and population ratios, which is considered one of the most remarkable changes in the Canadian labour market over the last twenty-five years (Rowe & Nguyen, 2004).

Nonetheless, there is a clear lack of Canadian research examining employees in gender specific occupations, and the impact upon drinking patterns and problems. Furthermore, despite evidence indicating that long work hours and high-strain jobs not only hamper employees' ability to harmonize work and family life, but are also associated with health risks such as an increase in alcohol consumption, the critical issue of alcohol use and abuse has not been adequately dealt with.

The current thesis aims to understand the complex relationships of the workplace, job stress, drinking patterns, and the interplay of gender based on a 2002 Alberta sample. Thus, questions that will be considered include: How does the workplace culture affect drinking patterns? Are there differences between the drinking patterns of women and

men who are in female and male-dominated[1] work from those who are not? Is there a relationship between stress and drinking patterns, and if so, what is the nature of the relationship? What is the relationship between the workplace culture, job stress and drinking patterns?

I will begin by reviewing the literature in key areas that are pertinent to the current project. These areas include the relationship between occupation and drinking, the workplace culture and drinking, stress and alcohol use, and changes in labour force participation. Subsequently, the research objectives of the proposed thesis will be presented, including a discussion of the theoretical framework. The research questions and hypotheses that follow, stem from the themes identified in the literature review and theoretical framework, which serve to inform this project. Methodology and sources of data measures and statistical procedures will also be discussed, followed by a discussion of the implications of the project.

The first substantive chapter (5) addresses the workplace culture and drinking patterns. Results are presented, and interpretations of the data are conducted. Chapter 6 addresses the effect of job stress on drinking patterns, which considers both the personal assessments of stress, as well as job characteristics contributing to stress. The next chapter (7) considers the overall relationship between the workplace culture, job stress, and drinking patterns. Few if any studies have considered the overall impact of these variables on the patterns of drinking. Chapter 8 emerged as an unexpected section. It discusses the effect of the workplace culture and job stress on the use of other substances

[1] The terms male or female dominated occupations refer to non-traditional and traditional occupations respectively. Researchers use these terms interchangeably but they commonly refer to the same point. Within this thesis, the term female and male dominated will be used. There is further discussion on this issue within the methodology section.

(tobacco and marijuana). Lastly, the conclusion of this dissertation summarizes the key findings of the previous four chapters, as well as the contribution of the current findings to the field of alcohol studies, suggestions for further research, as well as policy implications are discussed.

Key Concepts

The following provides definitions of the key concepts used within this thesis[2]. It is important to present these terms so that readers understand what each means.

Alcohol-Related

- Alcohol Use: The consumption of at least one alcoholic beverage in the twelve months preceding the 2002 survey of Alberta employees.

- Alcohol Consumption/Drinking Pattern[3]: The general patterns or actions of alcohol consumption exhibited by a respondent. Within this thesis, it includes the frequency of drinking, heavy drinking (i.e., six or more drinks), drinking within four hours of arriving at work, and drinking at work.

- Access to Alcohol: In reference to the work environment, respondents whose workplace has the availability of alcohol near the worksite, on the worksite or where co-workers go for drinks after work together.

Work-Related

- Employment or Work: The supply of physical, mental, and emotional effort to produce goods and services for one's own consumption, or for the consumption by others in exchange for money.

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[2] Refer to the *Measures* section of this dissertation for a comprehensive understanding of the manner in which all concepts were operationalized.
[3] These terms will be used interchangeably throughout this dissertation.

- Female-dominated Occupation: An occupation in which the proportion of men is less than the proportion of women (e.g., occupations with less than half of those employed as men).

- Male-dominated Occupation: An occupation in which the proportion of men is greater than the proportion of women (e.g., occupations with more than half of those employed as men).

- Gender-Mix: An occupation that consists anywhere between 41-59% males.

- Occupation: Based on the 2001 National Occupation Classification, which provides a complete listing of all the categories under which Canadian jobs and their descriptions are classified.

- Workplace Culture: Comprised of two major concepts - the gender composition of an occupation (i.e., male-dominated or female-dominated occupations), as well as the work environment of the respondent (see below).

- Work Environment: Indicates a respondent whose workplace has the availability of alcohol near the worksite, on the worksite, or where co-workers go for drinks after work together.

Stress-Related

- Job Characteristics (contributing to job stress): Refers to a respondent's job characteristics such as boredom, repetitive tasks, on-call work, working shift-work and working long hours, including overtime.

- Perceived Job Stress: Reporting some or extreme levels of job stress.

- Coping: A set of behaviours and attitudes that a person may use to mediate difficult external or internal demands (Siqueira, et al., 2000).

Chapter 2: A Review of the Literature

A thorough literature search was conducted prior to any data analyses in order to identify findings from past research as well as to ascertain possible trends. As a result of the findings from the review, the current project is placed in the context of the general body of scientific knowledge. The following themes speak to the different areas that will be addressed in the thesis and identify existing gaps in the research. It should be noted that unless otherwise specified, the following studies were conducted in North America.

Occupation & Drinking

Alcohol and other drug use are considered one of the most serious issues facing business and industry (Harris & Heft, 1992). As previously stated, annual productivity losses in Canada due to alcohol abuse have been estimated at $7.1 billion (Rehm, et al., 2006). A major factor contributing to the development of alcohol problems and dependence is one's occupation (Mandell et al., 1992; Wilsnack & Wilsnack, 1995), which has received some attention in alcohol research.

Among studies that have examined male and female-dominated occupations, some consider the effect on alcohol consumption and alcohol dependence. These studies have found those occupations that have been historically dominated by males to have higher alcohol consumption patterns than those positions deemed female-dominated (Blum & Roman, 1997; Cho, 2004; Dritschel & Pettinati, 1989; Hammer & Vaglum, 1989; Kraft et al., 1993; Lisansky-Gomberg, 1994; Mandell et al., 1992; Parker & Harford, 1992; Shore & Pieri, 1992; Svare, Miller & Ames, 2004; Wilsnack & Wilsnack,

1995; Wilsnack et al., 1994; Wilsnack & Wilsnack, 1991). Not only is there more drinking among employees in male-dominated occupations, but also there is more opportunity to drink as measured by whether or not an employee has been invited to have a drink by other employees, supervisors and/or clients and customers.

Blum and Roman (1997) found that among both female and male employees, those in male-dominated positions had 1.4 times as many opportunities to drink with their co-workers than those in female-dominated occupations. In addition, it was established that male-dominated jobs had 1.2 times as many opportunities to drink with co-workers as those in mixed gendered positions (Blum & Roman, 1997). Other researchers have also found similar results (Hammer & Vaglum, 1989; Kraft et al., 1993).

Consistent with these findings, Hammer and Vaglum (1989), found that women in traditionally female occupations used significantly less alcohol than those in the male-dominated fields. At least one study has found that among men, working in a typically female environment was associated with heavier drinking (Davidson & Cooper, 1984). The current thesis will explore the opportunity to drink in both male and female-dominated industries and occupations in order to provide further insight into this issue.

It has also been shown that employees in male-dominated occupations generally consume more alcohol. In yet another study (Kraft et al., 1993), it was found that employees in male-dominated occupations consumed fifteen more drinks per month than employees in female-dominated occupations. Kraft et al., (1993) found that employees in mix gender occupations, defined as those positions where 20-80% of job incumbents are men, consumed about five more drinks per month than employees in female-dominated jobs. Moore et al., (1999) in their comparison of managerial and non-managerial

employees, found that among female managers, older, married respondents reported relatively higher levels of alcohol consumption and problems, which was an opposite demographic pattern observed in men. However at least one study does not support the finding that women in predominantly male jobs have similar drinking patterns to males (Lennon, 1987). The results of these studies are notable but there remains a significant gap in alcohol research related to women in male-dominated industries and occupations. This aspect will be explored in the present thesis.

Currently, there is only speculation that women who are working in male-dominated jobs might be encouraged to drink by their male co-workers (Kraft et al., 1993; Svare, Miller & Ames, 2004). Findings by Wilsnack and Wilsnack (1995) suggest that in the United States, women in male-dominated occupations experience more problem drinking than women in female-dominated positions. These researchers also cite evidence from the Czech Republic where women in male-dominated jobs reported significantly more frequent wine and liquor consumption and higher daily alcohol consumption than women in occupations that are not male-dominated. Research examining men in female-dominated occupations are few, but the current thesis will evaluate this relationship.

Research that has longitudinally examined women in both male and female-dominated positions is based on the work of Sharon and Richard Wilsnack. In analysing 1981 U.S. survey data, Wilsnack et al., (2000a) found that women in predominantly male occupations reported more exposure to drinking settings, more frequent drinking by close friends, more frequent and heavier consumption of alcohol, and higher prevalence of all

components of the problem drinking index[4]. Examining 1991 follow-up data obtained from self-report surveys, differences in the drinking behaviour of women in male-dominated positions disappeared (Wilsnack et al., 2000a). These researchers no longer found any significant differences in any of the aforementioned drinking patterns, and furthermore found that drinking frequency declined to a greater extent among women in male-dominated occupations than women in female-dominated occupations. In addition, it was found that experience with intoxication actually increased among women in female rather than male-dominated jobs (Ibid). Clearly, there is a need for additional evidence in order to determine if such patterns will emerge in other samples. Furthermore, this thesis will consider drinking by males working in female-dominated occupations since it has been found that this research is essentially non-existent.

Studies that have examined the more general category of industry agree on those trades that are more likely to be associated with alcohol dependence. Food and service, forestry and technical industries are more likely than industries related to health and business services to have employees with alcohol dependence (Kjaerheim et al., 1995; Kraft et al., 1993; Mandell et al., 1992; Matano et al., 2002; Moore et al., 2001; Parker & Harford, 1992; Slattery, Alderson & Bryant, 1986). Cho (2004) found a positive relationship between the proportion of men employed within both industry and occupation, and increased alcohol consumption by women also employed in those industries and occupations.

[4] The problem drinking index (PDI) measures how many of three different drinking experiences women reported in the preceding 12 months: at least one occasion of drinking enough to feel drunk; at least one of eight drinking-related behaviour problems (i.e. drunk driving); and at least one of five symptoms of potential alcohol dependence (i.e. blackouts).

Upon specifically studying those in the food service division, Parker and Harford (1992) assert that bartenders had the highest prevalence of alcohol dependence (38% alcohol dependent; 15% severely alcohol dependent), followed by waitresses (6% alcohol dependent; 2% severely alcohol dependent). In another study of heavy drinking in the restaurant business, Kjaerheim et al., (1995) reported that the strongest predictors of heavy drinking were having an end of work drink, going out after work, and perceived pressure to drink. It is likely that the proximity of alcohol within the work environment is a major factor for the alcohol problems experienced by these employees. Availability of alcohol on or near the workplace is a matter of importance and exploration within the current thesis.

When examining those employed in construction trades, carpenters had the highest prevalence of alcohol dependence (16% alcohol dependent; 8% severely alcohol dependent) of which the vast majority was male (Parker & Harford, 1992). It was reported in a separate study, after adjusting for demographic characteristics, that movers/freight, stock and material; transport and material moving occupations; handlers, equipment cleaners and laborers; janitors and cleaners; and waiters and waitresses had elevated relative odds for alcohol dependence or abuse disorder (Mandell et al., 1992). Thus, there appears to be relative consensus on those occupations where heavy alcohol use and subsequent disorders can develop, but gender analyses are left out. Since the occupations with highest alcohol dependence are male-dominated positions, it is imperative to examine the impact of developing problem drinking within these occupations.

The Workplace Culture & Drinking[5]

Cultures in some occupations are heavily influenced by gender, which is especially true for those occupations that have historically been dominated by one gender (Ames & Rebhun, 1996). The gender composition of an occupation can greatly affect drinking behaviour through the workplace culture that may either accept and encourage drinking, or discourage it. Male-dominated occupations tend to have higher rates of drinking and heavy drinking because these occupations are more likely to have a workplace culture that encourages it (Mandell et al., 1992; Plant, 1981; Sonnenstuhl, 1996; Svare, Miller & Ames, 2004; Wilsnack & Wilsnack, 1991). By contrast, in female-dominated positions there is a less likely chance to drink and develop alcohol-related problems because these occupations are more likely to have a culture that inhibits drinking (Kraft et al., 1993).

Furthermore, researchers who have studied different occupations have found that heavy drinking can be a means of conforming to group standards within an occupational community (Svare, Miller & Ames, 2004; Trice & Sonnenstuhl, 1990; Wilsnack & Wilsnack, 1991). As stated, these occupations tend to be those consisting of primarily males. Since men are more likely to drink, then as a majority in the workplace, they are understandably also likely to drink according to an informal, or even formal workplace culture. Female-dominated occupations tend to support specific gender role orientations that can reduce women's risks for heavy and problem drinking, but these orientations are not apparent in male-dominated jobs (Wilsnack et al., 2000a).

It is argued that as women's employment levels increase and as gender roles become less differentiated, women will increase their drinking levels accordingly (Blum

[5] I address the workplace culture as a setting for drinking in the theoretical framework of this dissertation.

& Roman, 1997). One recent study (Svare, Miller & Ames, 2004) found that women who reported working in a negative social climate[6] also had a greater propensity to drink. This relationship was found among women in male-dominated occupations, but not among men working with a majority of men. The differential effects of the workplace culture on men and women's drinking is still unclear and requires further research.

The focus on specific occupations rather than broad job categories has been another method to consider the differential impact on drinking patterns. Such occupations include lawyers, nurses, police officers, hospitality managers, military personnel, coal miners, and doctors. Shore (2001) describes that gendered drinking norms and the norms of the occupational culture influence both men and women. When taking into consideration the business situation, female and male attorneys had similar rates of abstention and alcohol consumption suggesting that occupational norms were most important for both genders (Shore, 2001). Moreover Shore (2001) found that female criminal attorneys not only reported higher alcohol consumption during social occasions related to work than other female attorneys doing non-criminal work, but also male criminal attorneys. This finding lends some support to the understanding of the effects of the workplace culture, which this thesis will examine.

Discussed to a certain extent is another important aspect of the workplace culture-the work environment. The work environment, which includes job-related drinking opportunities, availability of alcohol on the work premises or near the premises, has the capability to influence an employee's drinking (Greenburg & Grunberg, 2000; Kjaerheim, et al., 1995; Shore, 1990; Trice, 1992; Trice & Sonnenstuhl, 1988; Svare,

[6] Negative social climate was measured by the frequency of: being criticized by a supervisor, being praised by a supervisor, arguments with a supervisor, serious arguments or fights at work, as well as the amount of tension among workers in the respondent's immediate area and the degree to which employees got along.

Miller & Ames, 2004; Wilsnack & Wilsnack, 1992). Trice & Sonnenstuhl (1988) report that the availability of alcohol during conferences, business lunches and office parties support heavy drinking. It has been argued that being in a work environment in which drinking is permitted or *expected,* is correlated with the presence of negative consequences, including drinking and driving. The current thesis will investigate the relationship between the work environment and drinking patterns in order to expand knowledge in this area. Furthermore, this thesis will examine employee alcohol use during the workday, which is an area lacking much research and knowledge.

Greenberg and Grunberg (2000) report that workplace factors, such as job-site decision making and the degree to which one used one's capacities on the job were unrelated to either heavy drinking or negative consequences from drinking. In addition, these researchers found that drinking alone and immediately after work are related to higher alcohol problems for all respondents.

Gender & the Workplace Culture[7]

There are numerous definitions of the term *culture* and *workplace culture* in the literature. For the most part, definitions are somewhat similar, although there is some debate on how culture should be defined and used, especially in the context of the workplace. The concept of culture in an organizational perspective has different

[7] The term *workplace culture* is used since it is a complex combination of both occupational culture and organizational culture (Dellinger, 2002). As a result, it is a term that is more encompassing and a better reflection of the term as used in the current dissertation.

meanings to employees compared to managers as compared to academics, particularly when the latter group comes from different disciplines[8].

Although gender is an important concept in many sociological studies, gender as a theme in organization or workplace studies is quite marginal (Angus, 1993; Harlow & Hearn, 1995; Miller, 2002), despite the findings that organizational cultures are strongly gendered (Alvesson & Billing, 1997; Bhattacharya, 2002; van Vianen & Fischer, 2002; Williams, 1995). Perhaps this is due in part to the recent, renewed use and debate of the concept of culture as it is employed in organizational analyses. (Harlow & Heearn, 1995; Lewis, 1998), or perhaps it is because workplace culture has proven to be a difficult concept to quantify and measure as there has been no standard measurement by researchers (Key, 1999). Nonetheless, gender is crucial to understanding what is happening with individuals in their working lives.

Among those studies that have documented gender dynamics in the workplace, it has been found that just like in other aspects of social life, organizations contain cultural forms that are so strongly ingrained, that they become internalized as appropriate action (Angus, 1993; Key, 1999). Such "appropriate action" can include drinking norms at the workplace and beyond, which are most likely governed by men and male norms. This assumption is explicit within the current thesis.

There has been, and in many occupations, continues to be a masculine dominance in organizational life (Alvesson & Billing, 1997; Bhattacharya, 2002; Harlow & Hearn, 1995; Miller, 2002; Rutherford, 2001; van Vienan & Fischer, 2002; Williams, 1995). Thus, the workplace is not gender-neutral and instead becomes a key feature for the

[8] It is not the intention of this piece to address the debate surrounding the use of the word culture in the workplace, but instead to present an overview of the research findings in this area that are concerned with the interplay of gender and the workplace culture.

creation and reproduction of gender differences and inequality. For instance, it has been found that the behaviours "most valued and rewarded in organizations are reflective of those typically associated with the masculine rather than the feminine" (Miller, 2002: 147). Moreover, masculine dominance has had an important influence on the kinds of research questions raised when examining the workplace and its culture, as well as the subsequent answers that result from the research.

The workplace culture is considered to contribute to the beliefs about and self-understandings of men and women, and what is masculine and feminine, thus further shaping gender identities in a work environment. Williams (1995) in her research of men in traditionally female occupations, found that both men and women are constrained to act in certain ways by organizational hierarchies, job descriptions and informal workplace practices that are based on "deeply embedded assumptions about masculinity and femininity, but this social construction of gender favours men..." (15). As a result, she found that men, upon entering predominantly female professions, did not "abandon" their gender identity and perhaps more importantly, they did not lose their position of male privilege in society (Williams, 1995). However, women who enter predominantly male occupations are almost forced to abandon their gender identity in order to fit with the male culture (Bajdo & Dickson, 2001; Bergman & Hallberg, 2002; Bhattacharya, 2002; Gherardi, 1996; Miller, 2002). This rationale is used within this dissertation in order to justify hypothesizing increased levels of drinking by women in male-dominated professions. It is believed that women in such occupations are compelled to drink because of the workplace culture in which they work.

Gherardi (1996) uses the metaphor of women "travelers" in a male world in order to exemplify the experience of women as strangers entering an *unnatural* culture where they must negotiate their identities differently according to the cultural contexts. This is consistent with the work by Alvesson and Billing (1997) who found that in all-men work groups, gender is active in the creation of their own workplace culture; "Beer drinking and talk about women in general terms underscore the shared masculinity" (116). However, when these workplaces are confronted with female employees, reactions are sometimes negative towards the women. Thus, a *cultural change* in how gender is performed will not necessarily occur because women are now entering the male work environment (Gale & Cartwright, 1995).

Although gender has been a marginal theme in organizational culture, the available research indicates organizations are strongly gendered, usually toward masculine traits. Men are most often those who control organizations both formally and informally, and consequently they generally make the rules (Harlow & Hearn, 1995). Thus, workplaces that are predominated by males have a workplace culture that is defined by the understandings, beliefs and behaviours of men to which women may feel pressured to adopt in order to feel accepted.

Stress & Alcohol Use

Stress and other mental health problems are larger problems in the workplace today than ten years ago, and the belief that alcohol consumption will reduce stress has some important implications for research (Grunberg et al., 1998; Hussong, 2003; Michels et al., 1999; Sayette, 1999).

There are several sources of stress stemming from the workplace, including physical demands and work overloads, time pressure, dirtiness, changes in job content, machine pacing, rotating shift work, role conflicts and monotony (Trice, 1992; Williams, 2003)[9]. The introduction of new technology is an exciting feature of work, however it is also these new technologies such as the Internet and email that permanently tie employees to their jobs. Thus, even when employees are not physically in the office, they may experience stress due to technological developments. In both 1994 and 2000, 34% of working Canadians cited "too many demands" or "too many hours" as the most common source of workplace stress (Williams, 2003). Some of the aforementioned sources of stress stemming from the workplace will be investigated within this thesis.

All levels of employees can feel the stress of work at one point or another. Managers and professionals in health-related occupations were significantly more likely to report too many demands or hours compared with workers in manufacturing, processing, or primary trades (Williams, 2003). Although men and women experienced similar levels of workplace stress, women between 45 and 64 were significantly more likely than men the same age to report feeling workplace stress as a result of too many demands or hours, whereas men at all ages were more likely than women to cite fear of accident or injury as a source of stress (Ibid.). Another study found that those employed in finance, health and trade reported the greatest stress, while those in primary resources, construction, and transportation reported the least stress (Macdonald & Wells, 1995). This thesis will also look at differences of women's and men's level of perceived stress.

[9] The use of alcohol to deal with work-related stress is also discussed when I address the theoretical framework of this proposal.

A number of studies indicate that there is a relationship between stress and alcohol use (Crum et al., 1995; Gianakos, 2002; Harris & Fennell, 1988; Roxborough, 1998; Seeman & Seeman, 1992; Stone, Lennox & Neale, 1985; Timmer, Veroff & Colten, 1985; Wills & Shiffman, 1985). However, the use of alcohol to deal with stress over other options stems from a number of factors, including social support, perceptions alcohol will reduce tension as well as lack of psychological resources. Social support has been found to be a significant aspect in helping mitigate the impact of stress (Harris & Fennell, 1988; Hussong, 2003; Michels et al., 1999). In some instances, having a social support system of friends, relatives and/or coworkers to turn to in times of need, may be the deciding factor of choosing alcohol or not. Individuals with limited social support may be less likely to seek help (Hussong, 2003), and may therefore choose alcohol over another method for dealing with stress. Gianakos (2002) reports that men were more likely than women to report using alcohol as a means of coping, but that high masculinity and/or femininity[10] were predictive of control-related coping styles such as help seeking, positive thinking and direct action.

There are also several studies showing opposite findings- that the consumption of alcohol is not always a method for dealing with stressful events (Breslin et al., 1995; Brady & Sonne, 1999; Conway et al., 1981; Cooper et al., 1990; Crum et al., 1995; Greenberg & Grunberg, 2000; Romelsjo et al., 1992; Shore, 1990; Vasse et al., 1998; Wilsnack & Cheloha 1987). The most fascinating results indicate that during periods of high stress, there is actually *less* alcohol consumption than low-stress days (Breslin et al., 1995; Conway et al., 1981). In these studies, respondents were found to not consume

[10] *Masculinity* includes such characteristics as "self sufficient" whereas *femininity* includes characteristics as "compassionate".

alcohol in order to deal with their greater levels of stress. Although explanations to account for this association are unclear, it is possible that high-stress days may have been characterized by high workload and lack of easy access to alcohol, thus reducing alcohol consumption (Breslin et al., 1995). Conversely, low stress days may have been characterized by greater opportunities to drink and to socialize in a drinking environment (Ibid.).

Vasse et al., (1998) found no direct association between stress and alcohol, and between work stressors and alcohol consumption. These researchers conclude that work stressors have only indirect associations with alcohol consumption through an increase in perceived stress. Furthermore, it was also found that in addition to the mentioned indirect associations, there was a direct relationship between work stressors and sickness absence (Vasse et al., 1998). Romelsjo et al., (1992) also found a mixed pattern of associations between measures of stressful conditions and high alcohol consumption. However this link was strong but unclear only when examining males. Among females, the association between stressful conditions and high alcohol consumption was more apparent. Given the mixed findings, it is important to investigate this question further in order to clarify the association between stress and drinking.

Cho (2004) reported that male-dominated rather than gender-balanced occupations are overall, a greater source of stress. However, this study did not find that the percentage of men in industrial classifications influenced the level of reported stress by employees. Furthermore, it was observed that with higher levels of stress experienced by female employees, there was also increased frequency of drinking. Finally, it was also

found that the average number of drinks on days of drinking was related to the percentage of men in both industry and occupation, suggesting that women drink to ease stress.

Changes in Labour Force Participation

Women are in the paid workforce in ever-greater numbers, and are entering previously male-dominated occupations with greater frequency (LaCroix & Haynes, 1987; Wine & Ristock, 1991). Worldwide, women now constitute over one-third of the paid labour force (Beck, 2000; Doyal, 1995). Based on 2002 Canadian statistics, 56% of all women aged 15 and over had jobs- an increase from 42% in 1976 (Statistics Canada, 2003).

In the past three decades, men's employment rates have dropped well below that of the late-1970s, although the unemployment rate for men since this time has been below that of women (Statistics Canada, 2004). Thus, despite the decline in employment, men remained more likely to be employed in 2003 (68% for men versus 57% for women), although the gaps are smallest among higher educated women and men (Statistics Canada, 2003). The participation rate among men in 2003 remained below the peak reached in 1981 (78%), however since hitting a low at 72% in 1998, men's labour force participation rate has edged up 1.5 percentage points to 74% in 2003 (Ibid.).

Profound changes in the labour force participation rates of mothers with young children have created some of the most significant social trends of the 20th century (McDaniel, 1993; Wortman, Biernat & Lang, 1991). Among Canadian women with children less than age 16, 72% were employed in 2002 compared to 39% in 1976. Among women with children less than age 3, 62% were employed- more than double the figure in 1976 when 28% of women were employed (Statistics Canada, 2003). This trend

reflects a "subtle revolution" (Smith 1979, as cited in Wortman, Biernat & Lang, 1991), that has been taking place since the 1940s whereby the "normative pattern of women's lives has been gradually transformed from one in which family (marriage, parenthood) and work roles were enacted *sequentially*, to one in which family and work roles are enacted *simultaneously*" (Wortman, Biernat & Lang, 1991: 89)[11]. Thus, women today are more likely to work and maintain a family at the same time than in years past.

A decline among Canadian women in traditionally female-dominated jobs was reported in 2002, while women have increased their representation in several professional fields (Statistics Canada, 2003). Women made up more than half (54%) of all doctors and dentists in Canada in 2002- an increase since 1987 when the proportion was 44%. In addition, there was an increase among women in managerial positions from 29% in 1987 to 34% in 2002 (Ibid.).

Nonetheless, there still remains a level of *occupational segregation* on the basis of gender. The majority of employed women in Canada continue to work in occupations in which women have traditionally been concentrated. In 2002, 70% of all employed women were working in one of teaching, nursing and health-related occupations, clerical or other administrative positions or sales and service occupations (Statistics Canada, 2003). This pattern of occupational segregation has been noted in other countries, such as the United States (Lorber, 1994; Padevic & Reskin, 2002; Vosko, 2000). In fact, it has been estimated that 39 million American women (or 52% of the female labour force),

[11] Italics added.

would have to shift to disproportionately male majority occupations in order to achieve occupational-level integration[12] (Lorber, 1994; Padevic & Reskin, 2002).

In 2003, one-quarter of men were employed in occupations involving trades, transport or equipment operation (Statistics Canada, 2004). An additional 1.7 million or one in five men, were working in sales and services. Men were least likely to be found in health occupations, or art, culture, recreation and sport. In recent years, the greatest employment growth for men has taken place in natural and applied sciences, with an average annual growth rate of 6% from 1996 to 2003 (Ibid.).

When examining changes in knowledge-based occupations[13], it has been found that in the business sector, the proportion of knowledge workers was substantially higher in the male employed labour force compared to the female employed labour force (Beckstead & Vinodrai, 2003). In 1971, almost 9% of the male employed labour force was in knowledge-based occupations. By 1996, 19% of the male employed labour force was employed in such occupations. Overall, the proportion of the male labour force in knowledge-based occupations grew faster than the proportion of the female labour force in knowledge-based occupations (Ibid.).

Given the current thesis focuses on the province of Alberta, it is worthwhile to comment that Alberta has the strongest employment rate in Canada. Alberta has consistently had the highest employment rate- 70%- of all the provinces since the early 1990s (Statistics Canada, 2004). In addition, since 1994, Calgary has consistently reported the highest employment rate of any major census metropolitan area, mainly due

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[12] Occupational-level integration refers to the proportion of women needed to evenly distribute occupations for the genders.
[13] Knowledge-based occupations generally refer to three broad groups of employment: management, professional, technical.

to strong job growth. In 2003, 71% of all Calgarians aged 15 years and over had jobs (Ibid.). Furthermore, the employment rate in Edmonton has also been among the highest in the country.

Summary of the Literature

This review of literature has evaluated numerous studies on the various aspects related to the workplace, stress, and drinking patterns. The key findings indicate that historically, those occupations that have been dominated by males have higher alcohol consumption patterns than occupations deemed female-dominated. When one gender dominates an occupation, a workplace culture heavily influenced by gender becomes apparent. This workplace culture has been shown to affect the drinking patterns of its employees. Despite the great changes in labour force participation not only by women, but also men, research shows that both men and women are obliged to act in certain ways by organizational hierarchies, job descriptions, and informal workplace practices that are rooted in assumptions about masculinity and femininity, which continues to favour the masculine. Finally, research shows there are several sources of stress stemming from the workplace, including physical demands, shift work, role conflicts, etc. Although there is no debate about the fact that all levels of employees can feel the stress of work at one point or another, the divergence comes from the mixed findings showing that in some instances, employees may use alcohol as a coping mechanism, while in others, this is not an alternative.

Given the copious amounts of literature reviewed, there are still a number of existing gaps in our knowledge. Limited research exists on the workplace culture and it's impact on an employee's drinking patterns. In addition, we know little about the effect of

an employee's occupation on subsequent drinking patterns. Clearly, there is the need for additional evidence in order to determine how patterns of alcohol consumption for women and men may change based on the gender composition of one's occupation, which is what this thesis will do. Furthermore, this thesis will also examine drinking on the job, as well as drinking prior to arriving at work, which is an area that has been deemed lacking in credible data (Frone, 2006).

Some studies show a relationship between high stress and increased alcohol use, whereas others have reported no direct association between the two. Stress in the workplace is almost a "given", however it appears that little thought has been given to the overall consequences this can have on an employee's well-being.

Finally, to date no research has been found that examines the overall relationship between the workplace, job stress, and alcohol use. As reviewed above, these topics have been considered independently, however not collectively. As a result, it is important to investigate this overall association for any new insights that can be provided into the understanding of the effects of drinking by employees.

CHAPTER 3: THEORETICAL FRAMEWORK

The theoretical framework for the current study is based on two different, yet interrelated models as applied to drinking behaviour. The first perspective, the workplace culture perspective, emphasizes the workplace as a culture that socializes its members to drink. The second perspective, the work stress perspective, relates stress experienced at work as a reason for drinking. Both perspectives will be considered in detail, and will be applied to the research claims of the current project.

The *workplace culture perspective* emphasizes that drinking norms develop within a particular workplace and assumes that the occupational subculture may promote drinking and subsequently heavy drinking. Although no specific definition of the "workplace" is provided within this perspective, it seems to be interchangeable with "occupational subculture", which refers to such factors as job duties, position within the organization, educational or skill levels and social or class background (Ames & Janes, 1992). Although job duties and backgrounds can differ within an occupation, there still remains a workplace culture that can emerge as a result of similarities among workers, particularly when considering beliefs about work and drinking.

A subculture has cultural forms that carry ideological messages from which collective understandings and patterns of behaviour emerge (Trice, 1993). A subculture may either intensify or falter from these ideologies, which generate new and unique sets of understanding, behaviour and cultural forms of their own (Ibid).

How can a workplace be considered a culture? First, Trice (1993) contends that occupations, in and of themselves, can be viewed as cultures. Since organizations

develop distinctive sets of beliefs that encourage their members to act in certain ways, occupations can be seen as cultures. A culture, and more specifically an organizational culture, is a set of understandings, beliefs and meanings that are shared by a group. In this instance, the "group" is that cluster of individuals who share the same occupation. It is through this culture that beliefs and shared understandings about alcohol in the workplace, including values and expectations regarding drinking behaviours exist (Ames & Janes, 1992).

Second, occupations can be thought of as subcultures since members typically practice their occupations inside a work organization (Trice, 1993). Subcultures contain collective beliefs and patterns of behaviour. An organizational subculture subscribes to a cluster of understandings, behaviours and cultural forms (Ibid.). For instance, most, if not all workplace cultures possess a set of norms or rules regarding appropriate behaviour. In some industries, regulations regarding alcoholic beverages on the job site, drinking during work hours and alcohol-related behaviour at work are articulated in great detail.

Occupational support for drinking stems from the fact that many occupations have been historically linked to drinking on the job and drinking after work. For such occupations as craftsmen, railroaders and automobile assembly line workers, mixing work and drinking has been a customary practice (Sonnenstuhl, 1996). Although drinking patterns changed in the 19th century so that most workers came to view drinking as a leisure activity that occurs outside of work, there are occupations that continue to mix drinking with work (Ibid.). Consequently, some occupations have and continue to support workers to drink, both on and off the job.

The notion of the workplace as a culture with a shared belief system is understandable. Moreover, the notion of how a workplace can promote drinking is further clarified by examining the workplace culture perspective. It is however possible that the workplace can produce a subculture that may inhibit drinking which might be the situation with female-dominated occupation, which traditionally show low levels of alcohol consumption. The workplace culture perspective also assumes that a subculture has its own norms regarding appropriate behaviour, which may be reflected by the availability or unavailability of alcohol on the worksite.

Generally two kinds of "availability" exist: physical and social (Ames & Janes, 1992). *Physical availability* refers to the accessibility of purchasing alcohol during the workday on site or at lunch. *Social availability* refers to the manner in which another person's drinking affects one's own drinking (i.e., the influence of others). Within the workplace, this specifically refers to the drinking practices within work-related social networks (Ames & Janes, 1992). People choose and befriend workmates who drink the way they themselves do and moreover, those with alcohol problems are more likely than those who do not have alcohol problems to drink with coworkers and experience social pressure to drink (Macdonald, Wells & Wild, 1999). In combination with the physical availability of alcohol in work environments, these two factors are important determinants for the escalation of "drinking" into "problem drinking".

The occupational subculture possesses boundaries that are based on a number of characteristics. Job duties, position within the organization as well as educational and class background are the entire basis for the occupational subculture that has the potential to promote drinking. The workplace may be as great an influence on individual drinking

patterns as ethnicity and family background (Ames & Rebhun, 1996; Trice & Sonnenstuhl, 1990), and therefore should be considered in studies on work-related drinking. According to Trice and Sonnenstuhl (1990), Americans spend more time working than they do with their families, therefore the workplace, as an institution that affects drinking patterns is significant. Although some researchers (Greenberg & Grunberg, 2000) argue that beliefs about the function of drinking as a coping mechanism are derived from outside the workplace, it does in fact make an additional contribution to the development and maintenance of such beliefs within the workplace.

The importance of understanding the workplace as a subculture is imperative for conceiving how it can encourage and support drinking. It is comprehensible through the workplace culture perspective, as to how a work environment can have the ability to influence an employee's drinking behaviour. Informal norms delineate socialization to drinking at work that may differ radically from a worker's personal life (Ames & Janes, 1992). Thus, individuals who do not usually consume alcohol on their own may do so at work or with colleagues. The workplace has this power of influence more so now than in the past because the influences of the family, community, neighbourhood and religion have diminished making the workplace a critical force for establishing values (Trice & Sonnenstuhl, 1990).

As shown in the review of literature, occupations that have been historically dominated by males tend to have greater incidences of drinking than occupations dominated by women. Because men have primarily shaped most organizational cultures, organizations tend to reinforce the value system of the dominant gender (Bajdo & Dickson, 2001; Bergman & Hallberg, 2002; Bhattacharya, 2002; Miller, 2002;). Even

occupations consisting of a gender-mix where anywhere between 20 and 80% of employees are male, have been found to greatly influence women's drinking patterns (Kraft et al., 1993; Wilsnack et al., 2000a; Wilsnack & Wilsnack, 1991). Thus, it is possible that the presence of a mass of males creates a culture that weakens the influence of traditional gender-related values for women[14] (Wilsnack, 1991), thereby ensuing greater drinking by women who are in male-dominated occupations. It is thus logical to assume based on this perspective and findings from the literature review, that occupations consisting of mainly men, will be more likely to have a workplace culture encouraging drinking.

In accordance with the workplace perspective, women who enter male-dominated positions may be expected to abide by the informal norms and partake in drinking thereby increasing their consumption levels and increasing their risk for dependence. This assumption is plausible given that Bajdo and Dickson (2001) found that female executives reported greater barriers to their advancement including lack of culture fit and exclusion from informal networks than did male executives. In addition, it has been found that in order for women to maintain a healthy self-image, they adhered to many of the norms set out in their workplace culture (Bergman & Hallberg, 2002)[15]. These same researchers report that women felt their abilities were often questioned and they needed to orient themselves in the workplace culture.

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[14] The indicators of traditionally feminine attributes include the ability to be understanding of other people, to be kind, and to be helpful to other people and aware of their feelings. Indicators of traditionally masculine attributes included self-confidence, feeling superior, being competitive and not giving up easily (Wilsnack, 1991).

[15] This finding is based on 11 in-depth interviews with women in a male-dominated workplace, which was conducted in order to obtain information about the many different aspects of women's work experiences.

A second formulation that will be examined is the *work stress perspective.* This perspective views and addresses a variety of conditions as causes of psychological and physiological distress, which employees seek to ease through drinking (Trice & Sonnenstuhl, 1988). This perspective emphasizes the various micro-level sources of stress both in the workplace and outside it. It must be noted that when considering stress arising from work, it is important to account for macro-level issues as well. Greenberg and Grunberg (2000) maintain that in order to understand job and workplace processes and how they affect people, globalization, technological and managerial revolutions that are in progress should be acknowledged in order to understand the affects of such changes on the individual. In other words, in an era of work-related changes that are constantly taking place and the fears and reservations that come with such changes, increase the number and intensity of job stressors (Greenberg and Grunberg, 2000). Thus, since work is so important as a source of meaning, identity, dignity and morale, work-related stressors will leave a negative mark on the behaviour and well-being of employees (Greenberg & Grunberg, 2000; Greenberg & Grunberg, 1995).

A basic principle regarding the association between stress and work is that psychosocial stress at work occurs as a result of either a potential or actual conflict between an employee and some aspect of the organization (Zaccaro & Riley, 1987). This principle is important since it takes into consideration *potential* conflict, as well as conflict that is in fact occurring. Events need not be only negative since positive events can also have the potential of causing stress. Stress can include the possibility of job loss or even job promotion (Sutherland & Cooper, 1988). Job insecurity is one form of a potential stressor, which signifies fear of job loss and the threat of redundancy. Over-

promotion occurs when an individual is promoted too soon, whereas under-promotion refers to mastering a job, but not advancing within the workplace (Sutherland & Cooper, 1988). All these circumstances have the potential for stress.

An individual's process of coping involves two cognitive elements: (1) an appraisal that a stressor exists that threatens ongoing goal-related behaviour; (2) a choice of a coping strategy and tactics for coping (Zaccaro & Riley, 1987). As reviewed in the relevant literature, there is considerable evidence indicating use of alcohol to deal with stress. Logically, alcohol consumption is not the only coping strategy, but if as speculated by the workplace culture perspective, there is social and/or physical availability of alcohol, this is a likely choice.

The work stress perspective also focuses upon workplace experiences and events that become translated into life strains. This perspective considers such sources of stress as physical properties of the working environment, changes in job content, machine pacing, monotony, lack of decision-making and the like (Ames & Janes, 1992; Trice & Sonnenstuhl, 1990). Associations have been found between job conditions causing stress and problem drinking. For instance, shift work has been found to lead to on-the-site alcohol use since this job condition has little or no supervision thereby allowing employees freedom; "Shift work reduces workplace controls by disrupting the natural rhythm of supervision and evaluation" (Trice & Sonnenstuhl, 1990: 208).

Sutherland and Cooper (1988) highlight various job conditions as sources of potential psychosocial and occupational stress. One such aspect they call *factors intrinsic to the job*, refers to both physical demands and task demands. Physical demands such as noise and temperature variation are subjective to the individual, but are still factors

related to stress. Consistent exposure to unwanted noise, for instance, can lead to headaches, irritability and inability to concentrate (Sutherland and Cooper, 1988). Task demands, such as shift work, repetitiveness and boredom are also potential sources of work stress. Work that is dull, repetitive and monotonous is as equally detrimental to physical and mental well-being, as is a hectic work pace. Moreover, having a heavy workload and working long hours or overtime also creates stress since the individual spends less time in social relationships, resulting in reduced social support outside the work environment (Ibid.).

Another category of potential stress is the *role of the individual in the organization,* where certain behaviours and demands are associated with the role of the individual (Sutherland & Cooper, 1988). There are three examples within this category. One is role ambiguity, which exists when an employee has unclear goals or objectives on how to perform tasks. Role ambiguity also results when an employee does not understand or realize the expectations of his/her role. Responsibility is identified as a second potential stressor associated with one's role in an organization. For instance, lack of responsibility may be stressful if an employee perceives this as work underload. Finally, role conflict exists when the expectation of an individual is at odds with the demands of other members in the organization. Performing tasks that are not perceived to be part of the job, or by being involved with a job that is inconsistent with personal values, are other examples of how stress is triggered.

Many individuals may experience poor working relationships with co-workers, which is another possible source of stress at work. Sutherland and Cooper (1988) classify this as *relationships and personal demands,* in reference to the various

relationships that can be developed at work. An individual within a workplace requires some form of affiliation with his/her colleagues since they offer social support. However, groups from work can place considerable pressure on an individual to conform to group norms, and if these behaviours are not consistent with the values and beliefs of the individual, stress will develop (Sutherland and Cooper, 1988).

Finally, another aspect of job conditions that can cause stress is *organizational structure and climate* (Sutherland & Cooper, 1988). Organizational structure and climate consists of four factors: autonomy, structure, reward and consideration orientation. All these factors are seen as the way in which the organization treats its members. Important for understanding the possible sources of stress resulting from being in the organization, is how the employee perceives the culture and climate of the workplace. Satisfaction or dissatisfaction is ultimately related to perception and evaluation of structure and climate (Ibid.). Stress factors mainly focus on the amount of job involvement or participation on the part of the employee for such issues as decision-making, consultation, communication, office politics etc. For instance, lack of participation and no sense of belonging are associated with stress, whereas participation in the decision-making process increases ones involvement in the organization, and helps to create a sense of belonging, thus negating any stress.

These four factors can each contribute to feelings of job stress. The important element is that an individual *perceives* such stress. Stress at work and drinking are related because workers who feel stressed through any one of the aforementioned aspects, learn through the work environment that drinking is one appropriate method for relaxing. Stress is a learned rationale for drinking, and one that is predominantly acquired in the

context of work from colleagues (Trice & Sonnenstuhl, 1990). Moreover, if an overlap between work and leisure schedules occurs, this increases the likelihood that an employee will either be at work or come to work in an impaired condition (Ames & Janes, 1992).

Overall, these two perspectives suggest that alcohol consumption and abuse are related to the type of workplace culture, as well as job stress that occurs within the work environment. It is easy to understand how the workplace culture perspective and the work stress perspective can both be used to explain the effects of the workplace and stress on drinking patterns. Although it has been established that a workplace culture promoting alcohol consumption is more typical in male-dominated than female-dominated positions, what is unknown and unexplained is the extent to which job stress affects alcohol consumption.

CHAPTER 4: RESEARCH DESIGN & METHODOLOGY

Research Methodology & Sources

Self Report Data

The Alberta Alcohol and Drug Abuse Commission (AADAC) have collected the data for the current project. AADAC is an agency of the government of Alberta that operates and funds information, prevention, and treatment services to help Alberta residents with alcohol, tobacco, other drug and gambling problems. AADAC has been providing addiction services to men and women for over 50 years.

In 1992, AADAC commissioned a study that examined prevalence, patterns of substance use and the impact of alcohol, illicit drug and medication use in Alberta's workforce. A second study entitled, *Substance Use and Gambling in the Alberta Workplace, 2002: A Replication Study* was designed as a replication and extension of the 1992 study.

The data for this project is from the 2002 study, which employed three survey instruments. For the purposes of this thesis, only the employee survey will be used. The employee survey, the longest survey, was divided into nine sections and respondents were selectively asked specific questions to maintain an average survey length of 15 to 20 minutes. All employees were asked items in sections pertaining to employment status, work environment, job factors, workplace issues, demographics and two of the three sections on alcohol, illicit drugs or gambling. Data were collected through telephone interviews with a random and representative sample of Alberta's working population. A response rate of 33% was achieved. Although this response rate may appear low, many

recent surveys on substance use have also exhibited low rates[16]. It has been noted that low response rates are reflecting a new trend in surveys (Stockwell et al., 2006). Nonetheless, this dissertation is exploratory in nature but more importantly, the findings reflect general trends observed in other national studies on alcohol use (i.e., men use alcohol more often than women; women are less likely to be heavy drinkers), and do not indicate systematic bias.

Characteristics of the Sample

A total of 2,836 respondents participated in the 2002 workforce survey, of which 1,890 (67%) were asked questions on alcohol consumption who indicated they were employed in a full or part-time position for pay[17]. The final sample was split by gender in order to distinguish gender differences, which resulted in two sub-samples of 710 females, and 585 males who were asked questions on alcohol consumption; and 1,305 females and 1,023 males who were asked questions on work and stress. "Split File" divides the data file into separate groups for analysis based on the values of one or more grouping variables in order to draw comparisons. Thus, all results will be presented separately for men and women.

Over half of the respondents (56%) were female and 33% of all respondents were between 45-64 years of age, followed by 31% who were between 35-44 (refer to Figures 1-3). The majority of respondents were married (75%), and the gross annual household

[16] The 2003 Alcohol Awareness Survey obtained a response rate of 22%; the 2001 Changing Employment Relationships Survey- 39%; and the British Columbia portion of the 2004 Canadian Addiction Survey, obtained a response rate of 43%.
[17] Number of respondents will vary since questions on work environment and job stress were asked of all respondents.

income was $50,000-99,999 for 39% of the sample. Most respondents (45%) have some college or university.

Figure 1: Age Distribution of Alberta Respondents

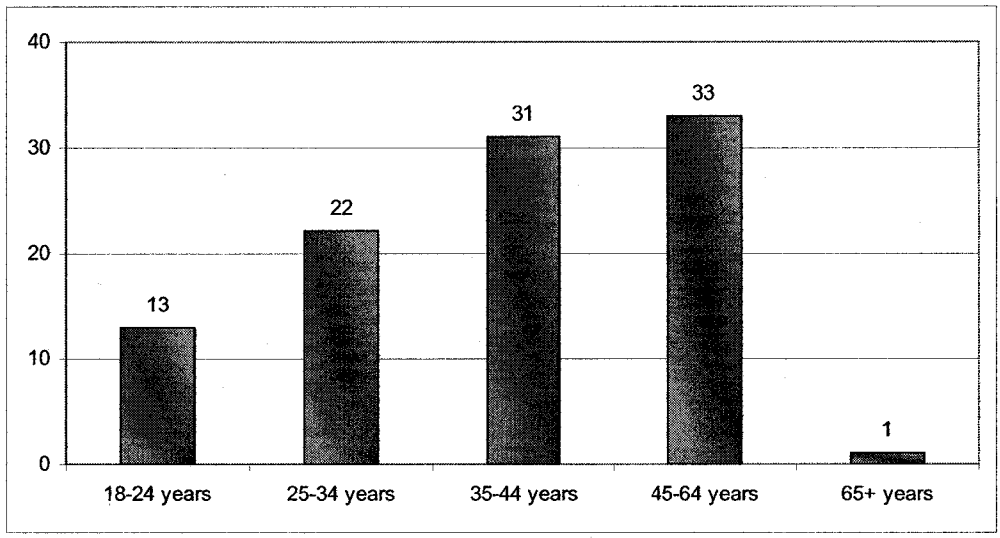


Figure 2: Income Distribution of Alberta Respondents

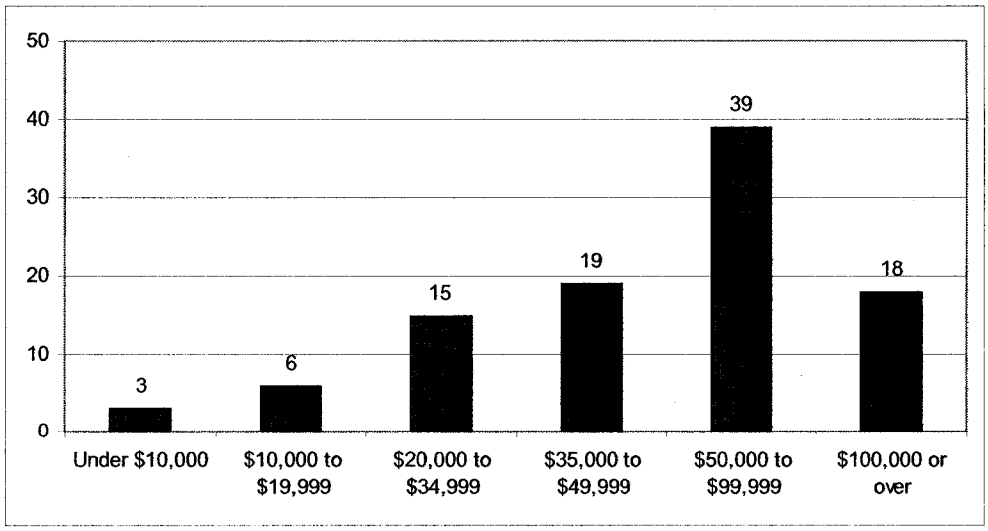
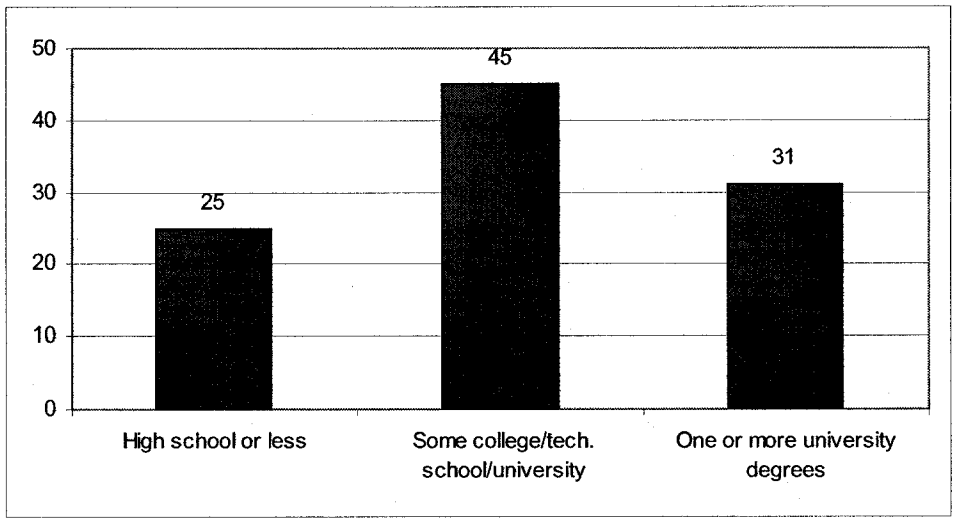


Figure 3: Highest Level of Education Achieved by Alberta Respondents



Concerning alcohol consumption, the majority (85%) of respondents indicated they had consumed alcohol in the twelve months preceding the 2002 survey. Among those who did consume alcohol (refer to Figure 4), 36% indicated they consumed alcohol two to four times a month. When drinking (refer to Figure 5), respondents typically consume between one or two drinks (66%).

Figure 4: Frequency of Alcohol Consumption by Alberta Respondents

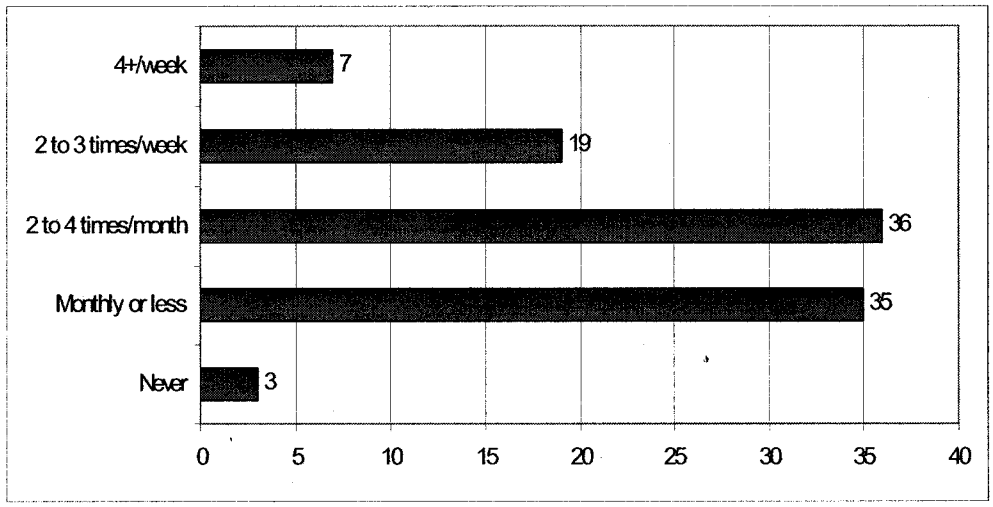
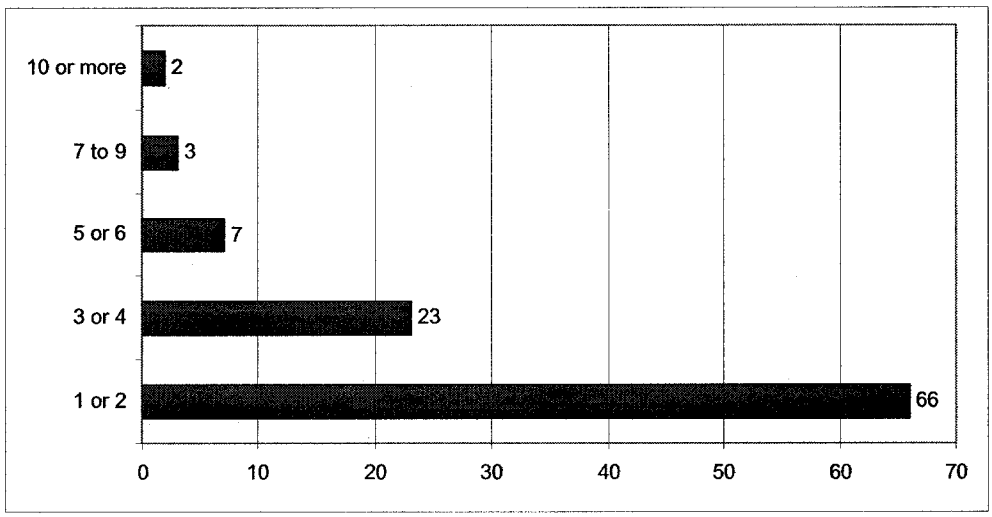
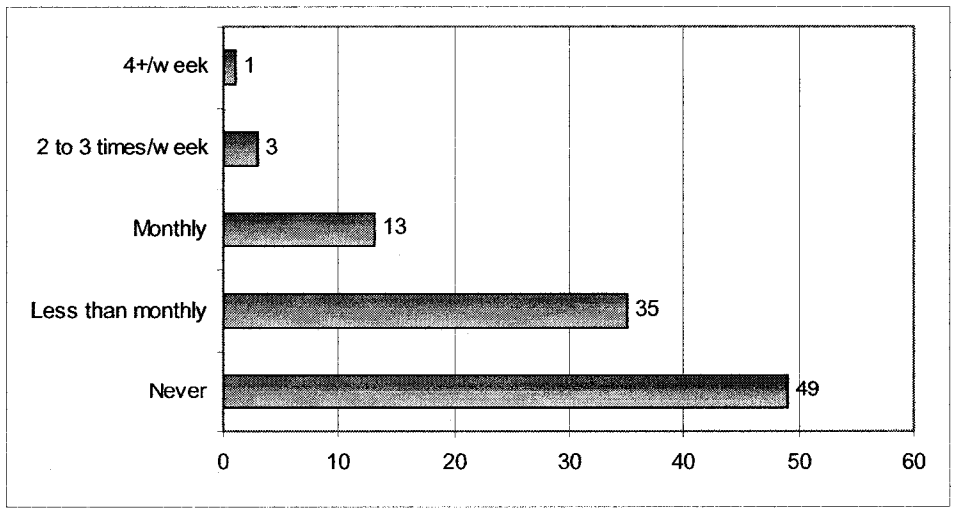


Figure 5: Usual Drinks Consumed by Alberta Respondents



When asked about heavy drinking (consuming six or more drinks on one occasion, refer to Figure 6)[18], 49% reported they never consume this amount. However, 35% indicated consuming six or more drinks less than monthly, followed by monthly (13%).

Figure 6: Frequency of Consuming Six or More Drinks by Alberta Respondents

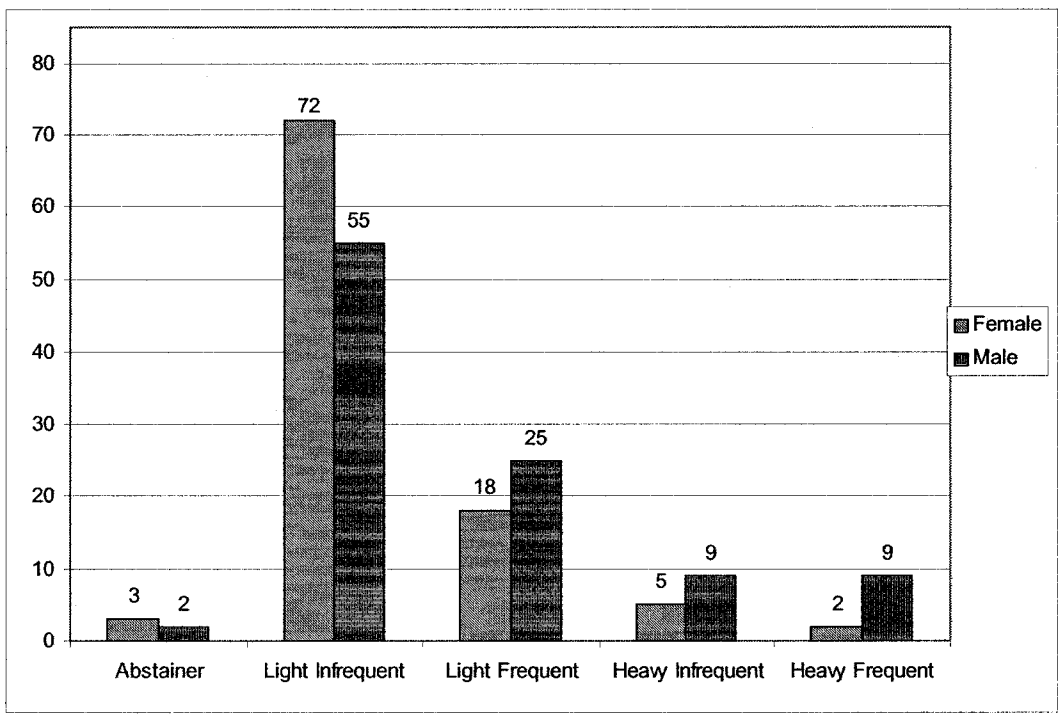


[18] This cut-off point was determined by AADAC. This point will be discussed further in the section on measures.

When comparing men and women's style of drinking (refer to Figure 7), women are more likely to be light-infrequent drinkers (72%) than men (55%)[19]. However, men are more likely to be light-frequent, heavy-infrequent, and heavy-frequent drinkers as compared to women.

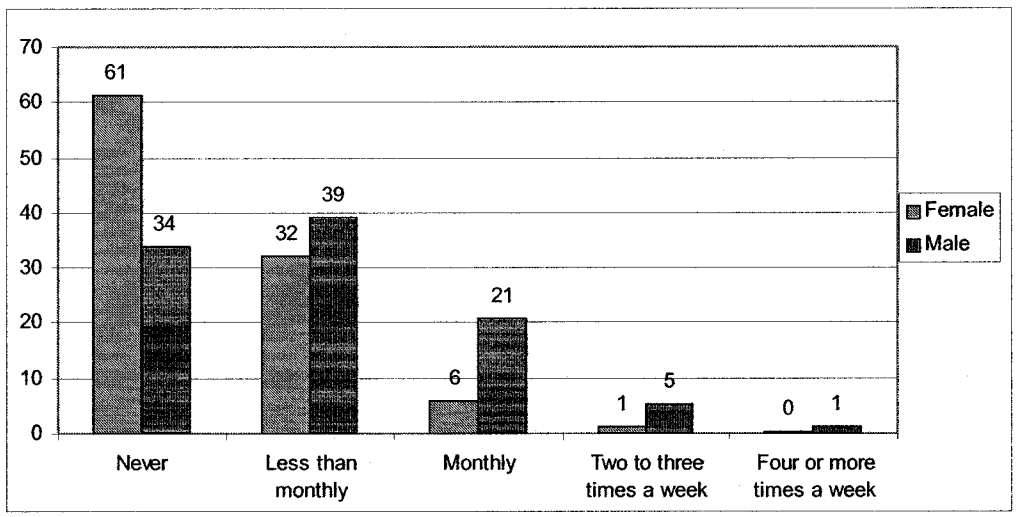
Men are also more likely to have episodes of heavy drinking than women. Among women, the majority (61%) report never having consumed six or more drinks on one occasion compared to 34% of men. Most men (39%) report having consumed six or more drinks less than monthly, compared to 32% of women.

Figure 7: Drinker Profile by Sex for Alberta Respondents



[19] Refer to the measures section and/or Appendix A for a listing of the items used to construct the drinker profiles, as well as the definitions for each.

Figure 8: Frequency of Heavy Drinking by Sex
for Alberta Respondents



Finally, the vast majority of both men and women report never having consumed alcohol while at work- 85% and 88% respectively- and within four hours of arriving at work- 93% for men and 96% for women.

Research Questions & Hypotheses

Following a thorough review of the literature, as well as the identified theoretical framework, the following research questions and hypotheses were developed in order to guide the current project. The measures that will be used for this thesis are detailed in the following section.

Although not explicitly stated within each hypothesis below, it is expected that gender differences will emerge. It is predicted that men will consume alcohol more frequently and in greater amounts than women, as well as be more likely to experience alcohol problems or dependence. It is predicted women will experience greater job stress than men, especially for women employed in male-dominated occupations when

compared to women in female-dominated positions. Finally, it is also predicted that women in occupations with a *gender mix,* will be more likely to exhibit the same or similar patterns of drinking as those in male-dominated positions (Kraft et al., 1993; Wilsnack et al., 2000a; Wilsnack & Wilsnack, 1991).

1. What is the effect of the workplace culture on drinking patterns?

How is occupation associated with drinking patterns?

How does the work environment affect drinking patterns?

Hypothesis 1:
Employees in male-dominated occupations are more likely to exhibit increased alcohol consumption than employees in female-dominated occupations[20].

Hypothesis 2:
Work environments where alcohol is easily accessible are more likely to be comprised of employees who exhibit increased alcohol consumption than work environments where alcohol is difficult to access.

2. What is the association of job stress and drinking patterns?

How does perceived job stress affect drinking patterns?

How do job characteristics affect drinking patterns?

Hypothesis 3:
Perceived job stress among employees is more likely to lead to increased alcohol consumption.

Hypothesis 4:
Employees with job characteristics contributing to job stress are more likely to exhibit increased alcohol consumption than those without these characteristics.

3. What is the overall association between the workplace culture, job stress and drinking patterns?

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[20] Increased alcohol consumption refers to the increased use of alcohol as measured by (a) overall alcohol use (i.e., drinker profile), (b) frequency of drinking, (c) heavy drinking, (d) drinking at work, and (e) drinking within four hours of arriving at work.

What is the overall relationship between occupation, work environment, perceived job stress, job characteristics contributing to job stress and drinking patterns?

It is imperative to take into account demographic variables such as age, marital status, level of education and household income. Failure to think about the effects of such variables could lead to the misinterpretation of the overall impact of employment and these variables when examined separately (Wilsnack & Wilsnack, 1992). As a result, the aforementioned demographic variables will be controlled for within this thesis in order to determine any significant changes from the original relationships.

Measures[21]

Workplace culture and job stress are the two independent variables in this study, and drinking patterns/alcohol consumption is the dependent variable. In addition, demographic characteristics such as age and education will be controlled for within this study. Table 1 at the end of this chapter shows how each concept is measured with the appropriate questions from the 2002 Alberta workplace surveys.

Workplace Culture

This variable will be measured using four questions. The first question is regarding the occupation of the respondent and asks: "What is your main or primary occupation?", which prompted respondents to describe their occupation. Due to entry error, occupations that were in fact the same, were coded as discrete occupations. For instance, "accounting clerk" and "accounting clerc" were coded separately due to the

[21] Refer to Appendix A for a listing of all variables, including items used to construct scales.

spelling error in the latter. As a result, all 2,328 occupations were individually reviewed and coded twice, according to the National Occupation Classification (NOC), 2001.

First, occupations were coded in general categories. For instance, all accounting clerk occupations were recoded into the all-purpose classification of "clerical occupations". Second, occupations were then coded into occupations that are more specific. The occupation of accounting clerk was recoded into "finance and insurance clerks", which is a more detailed explanation of the actual tasks of the occupation.

The decision to recode a second time was based on the finding that some of the general occupations (i.e. female dominated occupation of clerical) consisted of specific occupations that could be male dominated (i.e. "recording, scheduling and distributing occupations"). The same was found with other occupations (i.e. male dominated occupation of "other managers"), consisting of positions that were mix-gendered (i.e. "managers in health, education, social and community services"). Thus, it was determined that the more specific occupations provided greater detail, and observably affect the gender breakdown of each occupation which is critical to this analysis.

Once all occupations were recoded, the 2001 labour force data for Alberta was used to reflect the actual gender composition of each occupation based on the proportion of men. For instance, the occupation "auditors, accountants and investment professionals" was separately coded as "0.47", reflecting that this position is made up of 47% males. This variable was then used to create three additional variables in order to reflect female and male-dominated occupations.

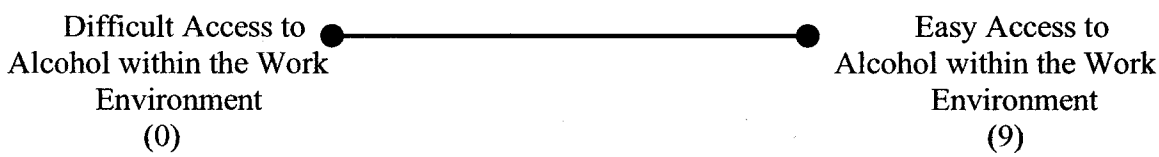
Past research has generally taken into consideration two approaches in defining female and male-dominated or traditional and non-traditional occupations. The first has

been to define an occupation as "non traditional" if one gender comprises less than 50% of workers in an occupation (Hughes, 1995). Other studies have established other cut-off points ranging from 20% to 45% (See Kraft et al., 1993; Wilsnack et al., 2000a). A second approach considers the distribution of gender within each occupation in relation to their distribution in the total labour force. An occupation in this instance is considered "non-traditional" for the gender whose representation in that particular occupation falls below its representation in the labour force (Hughes, 1995).

As stated, within this thesis three variables were created based on the gender composition of an occupation reflecting (1) a cut-off of 50% to determine male and female-dominated occupations; (2) a cut off where 0-40% males, will be referred to as female-dominated occupations, occupations with 60-100% males will be referred to as male-dominated occupation, and finally, occupations that consist of 41-59% males will be referred to as occupations with a gender mix; and (3) a cut off by deciles (0-10%, 11-20%, 21-30%, etc.) for a more detailed examination of how, if at all, the gender composition of an occupation may affect subsequent dependent variables.

Wilsnack et al., (2000a) used five different measures for their gender composition variable citing lack of consensus about how to categorize gender composition of an occupation as the reason. For the current thesis, it was deemed important to measure this variable in three separate ways due to the fact this is a fairly new area of research, as well as the issue of disparity on measurement of this variable. As a result, it is important to test gender composition in different ways in order to determine whether or not the way in which this variable is measured affects its relationship to drinking.

The final three sets of questions ask about the *work environment*. "Alcohol is permitted on the premises at work", "Alcohol is available near the workplace" and "People who work here frequently go for drinks after work". A weighted index was constructed in order to measure the work environment of the respondent. Respondents received a score of "3" for each "almost always" response, "2" for "most of the time", "1" for "sometimes" and a "0" for "never". The score obtained for this index is treated as a semi-equal interval variable. The minimum score obtainable is "0", and the maximum is "9", reflecting the two extremes of this index.



Job Stress

Based on the literature review, this question is measured using a series of questions pertaining to the respondent's job and worksite. An index was constructed in order to measure *job characteristics* where a respondent received a score of "1" for every "yes" answer, and a score of "0" for each "no" response. Thus, scores range from "0" to "5" representing the two extremes. As indicated below, on one end of the index a respondent can have no job characteristics contributing to stress (no job stress) and on the other, s/he will have it (enhanced job stress). The score obtained for this index is treated as a semi-equal interval variable.

No Job Stress (0) ●———————● Enhanced Job Stress (5)

The following items were selected for inclusion of this index: boredom, repetitive tasks, on-call work, working shift-work and working long hours, including overtime.

The second question measuring *job stress* is the question on perceived stress: "How stressful do you consider your job?", with response categories including "not at all stressful", "somewhat stressful" and "extremely stressful". Perceived job stress was recoded into those respondents who indicate job stress and those who do not. Thus, responses "somewhat stressful" and "extremely stressful" were collapsed into one category indicating stress while "not at all stressful" represents another category indicating no perceived job stress.

Alcohol Consumption/Drinking Patterns:

There were a number of questions that asked respondents about alcohol consumption, which were used to create drinker profiles. These profiles were created from two general areas: frequency of drinking and usual drinks consumed. On the subject of *frequency of drinking*, the question: "How often do you have a drink containing alcohol?" was used. Response categories include "monthly or less", "two or four times a month", "two to three times per week", and "four or more times a week". The question regarding u*sual number of drinks consumed*, asks "How many drinks containing alcohol do you have on a typical day when you are drinking?". Respondents were given the following choices: "1 or 2", "3 or 4", "5 or 6", "7 to 9", "10 or more" and "Don't know".

Thus based on these two questions, the following drinker profiles were created, which is consistent with other national surveys used in Canada[22]: *abstainers* have not consumed alcohol in the twelve months preceding the 2002 survey; *light- infrequent drinkers* drink less than once a week, with never having consumed five or more drinks; *light-frequent drinkers* reported drinking once a week or more and never reported drinking more than five drinks on a typical day of drinking; *heavy- infrequent drinkers* reported drinking less than once a week, with five drinks or more when alcohol was used; *heavy- frequent drinkers* reported drinking more than once a week and consumed more than five drinks when drinking.

The question, "How often do you have 6 or more drinks on one occasion?" is used to measure heavy drinking, which is based on the Alcohol Use Disorders Identification Test (AUDIT)[23]. Response categories include "never', "less than monthly", "monthly", "two to three times per week" and "four or more time per week". Although some researchers propose a gender specific measure of heavy episodic drinking reflecting five drinks for men and four drinks for women (Dowdall & Wechsler, 2002), since 1989 the AUDIT has been successful in identifying excessive drinking patterns and has been found to be equally appropriate for males and females (Babor et al., 2001).

In the 2002 survey, the questions "How often have you consumed alcohol in the past 12 months while at work?" and "How often have you consumed alcohol in the past 12 months within 4 hours of coming to work?" will be used to measure *drinking at work.* The response categories for this question include: "never", "once a week", "2-3 times a

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[22] Surveys include most recently, the Canadian Addiction Survey (2004), as well as previous surveys such as the National Population Health Survey.
[23] The AUDIT was developed by the World Health Organization as a simple method of screening for excessive drinking and to assist in brief assessment.

week", and "4+ times a week". Each question has been recoded into two separate variables reflecting those who have *never* arrived at work within four hours of drinking and those who have *never* consumed alcohol while at work; and those who have.

Other Substance Variables:

Research indicates that individuals use a variety of coping mechanisms to deal with stress. As a result, it was deemed important to also examine the possibility of using substances other than alcohol in order to fully explore the relationship between workplace culture, job stress and substance use. Although alcohol remains the key substance for investigation, it remains important to at least explore the possibility of other substances as they may or may not pertain to the other crucial variables in this dissertation. Thus, smoking and cannabis use will be utilized as other substance variables.

Regarding tobacco use, once a respondent indicated smoking in the past month, the question "How many cigarettes do you usually smoke per day?" was asked. Applying definitions from Health Canada, smoker profiles were developed by AADAC for current smokers based on this question indicating daily usage. *Non-smokers* are those who indicate they have not smoked in the month preceding the 2002 survey; *light smokers* consume between one and ten cigarettes daily; *moderate smokers* consume between eleven and nineteen cigarettes daily; and *heavy smokers* consume twenty cigarettes or more per day.

On the subject of cannabis use, if respondents indicated they had used marijuana in the last twelve months, they were then asked "how often in the last 12 months…". Responses included "less than 1 time per month", "1-3 times per month", "once a week",

"2-3 times a week", "4-6 times a week", "daily" and "don't know". These responses were recoded in order to create a profile of respondents who use cannabis on a monthly basis, weekly basis, and daily basis.

Control Variables:

The survey asks respondents about a number of demographic variables that will be controlled for. The control variables include *age,* which is broken down into 5 categories: "18-24 years", "25-34 years", "35-44 years", "45-64 years" and "65+ years". *Marital status* also contains 5 categories including, "married including common law", "separated", "divorced", "widowed", and "never married". The response categories were recoded to reflect those who have been married, and those who have not due to small numbers, which would restrain accurate logistic regression analyses[24]. *Highest level of education* originally included "did not graduate from high school", "high school graduate or equivalent", "some college, technical school or university", "completed technical school/trade school", "completed college" and "one or more university degrees". These response categories were recoded for multinomial logistic analyses into two categories- "one or more university degrees" and "less than university". *Household income* has 6 categories of income: "under $10,000", "$10,000 to $19,999", "$20,000 to $34,999", "$35,000 to $49,999", "$50,000 to $99,999" and "$100,000 or over". Finally, only respondents who are employed full-time or part-time for pay will be included in this analysis.

[24] Refer to Appendix B for further discussion on the reasons for reducing marital status into two categories.

Table 1: Questions from the 2002 Substance Use & Gambling in the Alberta Workplace Survey

WORKPLACE CULTURE	JOB STRESS	DRINKING PATTERNS
↓	↓	↓
○ What is your main or primary occupation? ○ On a 4-point scale, with 1 being Never, 2 Sometimes, 3 Most of the time and 4 being Almost always, please tell me how often each of the following occur in your workplace: ○ Alcohol is permitted on the premises at work ○ Alcohol is available near the workplace ○ People who work here frequently go for drinks after work together	○ How stressful do you consider your job? ○ Does your work involve any of the following characteristics: ○ Boredom ○ Repetitive tasks, ○ On-call work, ○ Working shift-work ○ Working long hours, including overtime.	○ How often do you have a drink containing alcohol? ○ How many drinks containing alcohol do you have on a typical day when you are drinking ○ How often do you have 6 or more drinks on one occasion? ○ How often have you consumed alcohol in the past 12 months while at work? ○ How often have you consumed alcohol in the past 12 months within 4 hours of coming to work?

Statistical Procedures

The main analysis for this thesis in order to determine significant relationships among variables is the use of multinomial logistic regression (also known as polytomous or polychotomous logistic regression). Multinomial logistic regression is an extension of the more basic logistic regression model. It is a form of regression that is used when the dependent variable has more than two categories and the independent variables are of any type (i.e. continuous or categorical). The goal of multinomial logistic regression is the same as any other model building technique used in statistics- to find the best fitting and most parsimonious, yet reasonable model to describe relationships between a dependent variable and a set of independent variables (Field, 2000; Hosmer & Lemeshow, 2000).

The Statistical Package for the Social Sciences (SPSS) version 12.0 for windows was used. Through such statistical packages there are several procedures for selecting and entering predictor variables that a researcher can choose from when conducting multinomial logistic regression. When there are numerous independent variables and a researcher needs to narrow down the best predictors, stepwise regression is usually used. However, since the number of independent variables within this project is limited, variables will be entered through a "user-defined" method. In this instance, the researcher selects at which point variables will be entered into the model, in order to measure overall effects. This is especially important within this dissertation since *variance partitioning* is used when conducting data analysis.

Variance partitioning refers to attempts to partition the R^2 into portions attributable to different independent variables, or to different sets of independent

variables (Pedhazur, 1997). Using this method allows for the researcher to note the increment in the proportion of variance accounted for by the independent variable(s), at the point at which it is entered into the regression analysis. As noted by Pedhazuer (1997), the order at which variables are entered is mainly determined by the researcher's theory regarding the variables being studied. For the current thesis, careful consideration has been made for deciding when variables will be entered into each model. However, in order to air on the side of caution and since there are few independent variables, each predictor variable is entered against the dependent variable independently in order to reveal any explanatory power that could potentially be missed. Control variables are entered all at once following the initial analysis, which determines the additional explanatory power provided by the socio-demographic variables.

Overall, multinomial logistic regression will provide valuable information on the best predictors of alcohol consumption among Alberta employees. It will allow for close examination of each independent variable and how it affects the outcome of drinking behaviour. Multinomial logistic regression will also permit the selection of those variables that are the best fit to the data.

CHAPTER 5: WORKPLACE CULTURE & DRINKING PATTERNS: DATA ANALYSIS & DISCUSSION OF FINDINGS

Overall, work environment was found to be a key and consistent variable at predicting drinking behaviour among Alberta employees. It is an unfailing predictor for both men and women, and furthermore, persists with the introduction of several socio-demographic variables. Gender composition on the other hand, presents mixed results and is not as clear at predicting drinking patterns. With the hopes of clarifying findings from previous research, three different measures were used to operationalize gender composition. It seems however, the current findings have raised more questions about the manner in which gender is associated with drinking patterns, than they have actually answered.

One of the objectives of the current project is to explore and account for the different relationships between the workplace culture and drinking behaviour among a sample of Alberta employees. Although employment per se does not seem to be a simple risk factor for women's problem drinking, certain types of employment may pose risk (Lisansky-Gomberg, 1999; Wilsnack & Wilsnack, 1991; Wilsnack, Wilsnack & Klassen, 1984). As a result within this thesis, the gender composition of an occupation is used as a "type of employment" in order to examine whether or not working with a particular gender might pose risk for increased drinking. Furthermore, data have been split by gender in order to determine if in fact women are drinking more when working with a greater proportion of men. Thus, results are presented separately for men and women.

It has also been found that most studies of workplace drinking practices have failed to examine workers on-the-job drinking, focusing instead upon their leisure time activities (Sonnenstuhl, 1996). This focus reflects the extent to which the belief that drinking and work do not mix has been institutionalized. It has been argued that researchers take for granted that workers no longer drink at work, and as a result do not ask questions about such practices, which results in limited data on the prevalence of

alcohol use during the workday (Frone, 2006; Sonnenstuhl, 1996). Consequently, the present thesis has taken into consideration drinking at work, as well as an employee's work environment, which may affect one's level of drinking.

This chapter aims to answer the first set of research questions. Namely, what is the effect of the workplace culture on drinking patterns? More specifically, how is occupation associated with drinking patterns? How does the work environment affect drinking patterns? The two hypotheses tested are: *Hypothesis 1*: employees in male-dominated and mix-gender occupations are more likely to exhibit increased alcohol consumption than employees in female-dominated occupations. *Hypothesis 2*: work environments where alcohol is easily accessible are more likely to be comprised of employees who exhibit increased alcohol consumption than work environments where alcohol is difficult to access.

Review of Measures

As stated elsewhere, *workplace culture* includes the gender composition of an occupation as well as the work environment of the respondent. Gender composition is measured by the proportion of men based on 2002 Alberta labour force statistics, and is measured three different ways- by a 50/50 split; by three divisions representing 0-40% males, 41-59% males and 60-100% males; and finally by deciles (i.e. 0-10% males, 11-20% males and so forth).

As discussed in Chapter 4, the index created in order to measure work environment is based on three questions concerning the respondent's work environment

(i.e., questions on the availability of alcohol). The score obtained for this index is treated as a semi-equal interval variable.

Regarding the dependent variables, the following drinker profiles[25] are used to describe respondents in this sample: *abstainers* have not consumed alcohol in the twelve months preceding the 2002 survey; *light infrequent drinkers* drink less than once a week, with never having consumed five or more drinks; *light frequent drinkers* reported drinking once a week or more and never reported drinking more than five drinks on a typical day of drinking; *heavy infrequent drinkers* reported drinking less than once a week, with five drinks or more when alcohol was used; *heavy frequent drinkers* reported drinking more than once a week and consumed more than five drinks when drinking.

The question, "How often do you have 6 or more drinks on one occasion?" is used to measure heavy drinking. Finally, the questions "How often have you consumed alcohol in the past 12 months while at work?" and "How often have you consumed alcohol in the past 12 months within 4 hours of coming to work?" will be used to measure *drinking at work* and *prior to arriving at work* respectively.

Summary of Findings

Based on the findings from this chapter, one key finding is that the *work environment is an important predictor of drinking*, regardless of one's gender. In fact, the work environment is a better and stronger predictor of drinking than the gender composition of one's occupation. Thus, as predicted by the workplace culture perspective, the presence of males as a majority does not influence an employee to drink.

[25] These drinker profiles are consistent with other National surveys used in Canada, which consider both the frequency of drinking, and usual drinks consumed.

However, the ease at which an individual can access alcohol does have an important association with a respondent's alcohol consumption. Moreover, among male and female respondents who have easier access to alcohol, are *more likely to be frequent drinkers.*

Although gender composition did not emerge as strong a predictor of drinking as anticipated, a number of findings related to this variable are worthy of note. *Female-dominated occupations predicted lighter drinking,* however among males, these occupations were *better predictors of heavy alcohol consumption.*

When considering the overall research question, which takes into consideration the work environment and gender composition, it was found that once again the *work environment is a stronger predictor of frequent drinking than gender composition.* Overall, *work environment was a key and consistent predictor for drinking.* The following sections expand upon this brief synopsis of the findings.

Descriptive Analysis

When examining the gender composition of an occupation in two categories, the vast majority of women are working in female-dominated occupations (78.8%), and the vast majority of men are working in male-dominated occupations (72%). Occupation in three categories shows that 65.6% of female respondents are employed in a female-dominated occupation, 20.9% are in mix-gender occupations and 13.5% are employed in male-dominated positions. Among men, a small proportion (17.1%) is employed in female-dominated occupations. Finally, the detailed category of occupation by deciles shows that 21.9% of female respondents are working at a job consisting of 21-30% males. With male respondents, 28.7% are working with 91-100% males. Regardless of

how gender composition is measured, overall women and men are employed in traditional occupations, which is consistent with other findings from other countries (Lorber, 1994; Padevic & Reskin, 2002; Statistics Canada, 2003; Vosko, 2000)

The second component constituting the workplace culture is the work environment, which includes co-workers going for drinks together after work, the availability of alcohol near the workplace as well as on premises at work. The vast majority of respondents, both male and female, report alcohol is never permitted at work- 81.4% and 79.8% respectively. Regarding the availability of alcohol near the workplace, 42.1% of females report it is almost always available while most males (40.7%) report it is never. Fifty-two percent of male and 48% of female respondents state that co-workers sometimes go for drinks after work together.

Multinomial Logistic Regression Results

Multinomial logistic regression is used in order to assess the best predictors for the outcome variables. Detailed results are presented in tables with the appropriate odds ratios, where ratios greater than 1 indicate a positive relationship, and odds ratios less than 1 indicate a negative relationship. As stated in the outset of this chapter, the aim here is to answer the first research question that focuses on the workplace culture and drinking patterns.

Gender Composition of an Occupation and Drinker Profile

Three main models examine the impact of occupation on one's classification into a drinker profile. For all three models, the reference category is "light-infrequent"

drinkers, signifying the group to which all comparisons are made. Refer to Table 5-1 for details on all significant associations from Models 1-3, including those significant control variables. It should be noted that there are gender differences regarding the variance explained (i.e., R^2), in all three models. The model has stronger predictive power for male than female respondents, indicating that the predictors are better explaining drinker profile for men.

Model 1 examines the gender composition of an occupation by two categories and drinker profile. There are no significant relationships for either males or females. However, when considering the control variables, significant associations emerge. Females working in female-dominated occupations have significantly greater odds than women in male-dominated occupations to be abstainers as compared to light-infrequent drinkers, controlling for all other variables. Among male respondents, it was found that those working in female-dominated occupations have greater odds than men in male-dominated positions to be heavy-frequent drinkers as compared to light-infrequent drinkers, controlling for the other variables. In addition, it was found that for some respondents, as they age, they are less likely to drink. Among men, those who have been married are less likely to be heavy-frequent drinkers as compared to light-infrequent drinkers than those who have never been married.

Model 2 also takes into consideration drinker profile, however the independent variable of gender composition includes three categories. Only one significant relationship emerged- women working in mix-gender occupations are more likely than those in male-dominated positions to be light-frequent drinkers as compared to light-infrequent drinkers. Model 2 with controls shows a number of significant associations.

Among all respondents, older individuals are less likely to be both heavy-infrequent and heavy-frequent drinkers. Specifically among female respondents, those who have been married have lower odds of being heavy-frequent drinkers as compared to light-infrequent, than those who have never been married.

Finally, Model 3 examines the effect of gender composition of an occupation by deciles on drinker profile. It was found that among men, as the proportion of men increases, the likelihood of being a heavy-infrequent drinker as compared to a light-infrequent drinker also increases by 18%. As with other models, as respondents age, they are less likely to be heavy-infrequent and heavy-frequent drinkers (men only). In addition, men with less education are more likely to be heavy-infrequent drinkers as compared to light-infrequent drinkers. Among women with less education, they are less likely to be light-frequent than light-infrequent drinkers.

Gender Composition of Occupation and Heavy Drinking

An additional three models examine the effect of gender composition on heavy drinking. The reference category for all three models is those respondents who indicate they have "never" consumed six or more drinks on one occasion. This is the group to which all comparisons will be made. Refer to Table 5-2 for all significant associations related to Models 4-6. Once again, there are gender differences in the following three models. More specifically, the model has stronger predictive power for male respondents than female. Thus, gender composition better explains heavy drinking by men than by women.

Table 5-1: Logistic regression coefficients measuring the effect of gender composition of an occupation on drinker profile.

	Abstainer Exp (B)		*Light-Frequent Exp (B)*		*Heavy-Infrequent Exp (B)*		*Heavy-Frequent Exp (B)*	
	Female	*Male*	*Female*	*Male*	*Female*	*Male*	*Female*	*Male*
***Model 1:* Gender Composition in 2 Categories**								
Female-dominated	**3.154****							**2.390***
Age					0.579*	0.594*		0.345**
Income		0.569*						
Marital Status Ever Married								0.289*
Education Less than University			0.543*			6.893*		
Females- N= 644, R^2 = 0.112; Males- N= 539, R^2 = 0.230								
***Model 2:* Gender Composition in 3 Categories**								
Female-dominated								
Mix-gender			2.120* **2.140***					
Age					0.570*	0.585*		0.344**
Income		0.562*						
Marital Status Ever Married			0.531*				0.227*	0.296*
Education Less than University						6.822*		
Females- N= 710, R^2 = 0.023; *Males- N= 584, R^2 = 0.032* *Females- N= 644 , R^2 = 0.111; Males- N= 539, R^2 = 0.231*								
***Model 3:* Gender Composition in Deciles**						1.175*		
Age					0.579*	0.585*		0.349*
Income								
Marital Status Ever Married	0.098*							0.271*
Education Less than University			0.541*		0.579*	6.061*		
Females- N= 710, R^2 = 0.007; Males- N= 584, R^2 = 0.014 *Females- N= 644, R^2 = 0.111; Males- N= 539, R^2 = 0.231*								

Note: ** indicates significance at the .001 level; * indicates significance at the .05 level. Odds ratios reported in bold indicate results of main predictor variables when analysed with control variables. Odds ratios less than "1" indicate a negative association; greater than "1" indicates a positive relation.

Beginning with Model 4, there are no significant relationships for male and female respondents. Model 4 with controls however, shows a number of significant associations. Among women, age and education are significant and among men, age, education and marital status emerge as significant. Gender composition in two categories remains to not be significant.

Model 5, shows no significant associations between gender composition of an occupation and heavy drinking. Entering control variables produces some significant associations. Among male respondents, those working in mix-gender occupations are more likely than those in male-dominated ones to consume six or more drinks less than monthly and monthly respectively, as compared to never, controlling for the other variables.

Model 6 examines the effects of gender composition of an occupation by deciles on heavy drinking. Only one significant relationship emerged with this model for male respondents. A one-unit increase in the proportion of men increases the odds in favour of drinking six or more drinks monthly by a factor of 1.1. For every 10% increase in men in an occupation, there is a 13% increase in the odds of men drinking monthly as compared to never. As with previous models, age and educational level are significant predictors for women, whereas age, education and marital status are significant for male respondents.

Table 5-2: Logistic regression coefficients measuring the effect of gender composition of an occupation on heavy drinking.

	Less than Monthly Exp (B)		*Monthly Exp (B)*		*2-3 times/Week Exp (B)*		*4+ times/Week Exp (B)*	
	Female	*Male*	*Female*	*Male*	*Female*	*Male*	*Female*	*Male*
Model 4: Gender Composition in 2 Categories								
Female-dominated								
Age	0.529**	0.612**	0.429**	0.469**	0.354*	0.365**		0.331*
Income								
Marital Status Ever Married				0.351**				
Education Less than University	1.560*	1.676*		2.278**				
Females- N= 622, R^2 = 0.186; Males- N= 532, R^2 = 0.213								
Model 5: Gender Composition in 3 Categories								
Female-dominated								
Mix-gender		**2.020***		**0.478***				
Age	0.528**	0.595**	0.430**	0.453**	0.360*	0.361**		0.312*
Income								
Marital Status Ever Married								
Education Less than University	1.552*	1.635*		2.073*				
Females- N= 685, R^2 = 0.009; Males- N= 573, R^2 = 0.028								
Model 6: Gender Composition in Deciles				1.129*				
Age	0.529**	0.610**	0.430**	0.458**	0.353**	0.365**		0.322*
Income								
Marital Status Ever Married				0.328*				
Education Less than University	1.547*			1.937*				
Females- N= 622, R^2 = 0.185; Males- N= 532, R^2 = 0.221								

Note: ** indicates significance at the .001 level; * indicates significance at the .05 level. Odds ratios reported in bold indicate results of main predictor variables when analysed with control variables. Odds ratios less than "1" indicate a negative association; greater than "1" indicates a positive relation.
- Reference category for gender composition is male-dominated; marital status- never married, education- one or more university degrees.

Gender Composition of Occupation and Drinking at Work

The final models considering the effects of gender composition of an occupation, examine its impact on drinking at work. The reference categories in this section are all those employees who indicate they have "never" consumed alcohol while at work. Table 5-3 shows all significant associations for models within this section. Although gender differences are evident for the variance explained in the proceeding models, in two instances (Models 7 and 9 both with controls), there is more variance explained for women than men.

The findings from multinomial logistic regression indicate that women working in female-dominated occupations have greater odds (90%) of having ever consumed alcohol while at work versus never, compared to those working in male-dominated occupations. Opposite to these findings are those related to men working in female-dominated occupations- men in female-dominated occupations are 53.3% less likely to have ever consumed alcohol while at work versus never. Both these associations persist even after controlling for the various socio-demographic variables.

Model 8, which considers the gender composition of an occupation in three categories, shows three significant associations. The odds for female respondents of ever having consumed alcohol while at work versus never are 53.7% lower for employees in female-dominated occupations than for those in male-dominated occupations. These findings are different from those in Model 7. When examining male respondents, two significant findings appear. Males working in both female-dominated and mix-gender occupations are more likely to have ever consumed alcohol while at work than those males in male-dominated positions. When controlling for the five socio-demographic

variables, gender composition remains significant however, the finding related to men in female-dominated occupations in three categories disappears.

Model 9, which considers the gender composition of an occupation by deciles, shows this variable to be significant for both male and female respondents. What is of particular interest upon examining the parameter estimates is the finding that for each 10% increase in the proportion of males in a given occupation, the odds of a man drinking while at work decrease by 14%. Among women however, with each increase in males, there is a 15.4% increase in the odds of having consumed alcohol while at work compared to never. Thus, it seems that a presence of males influences women to drink while at work, yet for men this has an opposite effect where they are less likely to drink. With the introduction of the socio-demographic variables, there remains a significant relationship with gender composition and in the same direction.

Gender Composition of Occupation and Arriving at Work Within Four Hours of Consuming Alcohol

The final three models, which take into account the effects of gender composition (in two categories, three categories and by deciles) and arriving at work within four hours of having consumed alcohol, show no significant associations (refer to Table 5-3). All three models contain no significant relationships between the independent and dependent variable. When entering the control variables into these models, the socio-demographic predictors show some significant associations, although gender composition remains to be a non-significant variable. The variance explained shows gender differences with stronger predictive power for female than male respondents.

Table 5-3: Logistic regression coefficients measuring the effect of gender composition of an occupation on drinking at work and within four hours of arriving at work.

	Ever Consumed at Work Exp (B)		*Ever Consumed within Four Hours Exp (B)*	
	Female	*Male*	*Female*	*Male*
***Models 7 & 10:* Gender Composition in 2 Categories**				
Female-dominated	1.900* **2.243***	0.467* **0.520***		
Age				
Income				1.463*
Marital Status Ever Married			0.265*	0.421*
Education Less than University	0.437*			
Females- N= 686, R^2 = 0.015; Males- N= 576, R^2 = 0.030 *Females- N= 623, R^2 =0.109;* *Males- N= 532, R^2 =0.077*			*Females- N= 623, R^2 = 0.061;* *Males- N= 533, R^2 = 0.051*	
***Models 8 & 11:* Gender Composition in 3 Categories**				
Female-dominated	0.463* **0.389***	1.939*		
Mix-gender		3.346** **3.114***		
Age			0.641*	
Income				1.450*
Marital Status Ever Married			0.261*	
Education Less than University	4.46*			
Females- N= 686, R^2 = 0.023; Males- N= 576, R^2 = 0.056 *Females- N= 623, R^2 = 0.066;* *Males- N= 533, R^2 = 0.076*			*Females- N= 623, R^2 = 0.134; Males- N= 532, R^2 = 0.086*	

Continued…

Models 9 & 12:			
Gender	1.154*	0.860**	
Composition in Deciles	**1.181****	**0.879***	
Age			
Income			1.463**
Marital Status Ever Married		0.275**	
Education Less than University	0.453*		
Females- N= 686, R^2 = 0.024; Males- N= 576, R^2 = 0.036			
Females- N= 623, R^2 = 0.068; Males- N= 533, R^2 = 0.054			
			Females- N= 623, R^2 = 0.122; Males- N= 532, R^2 = 0.085

Note: ** indicates significance at the .001 level; * indicates significance at the .05 level; Odds ratios reported in bold indicate results of main predictor variables when analysed with control variables. Odds ratios less than "1" indicate a negative association; greater than "1" indicates a positive association.
-Reference category for gender composition is male-dominated; marital status- never married, education- one or more university degrees.

Work Environment and Drinker Profile

The first model taking into account the work environment and its effect on alcohol use (Model 13), considers the dependent variable of drinker profile (refer to table 5-4). The reference group is respondents classified as "light-infrequent drinkers". Based on the parameter estimates, respondents- both male and female- who have easier access to alcohol are significantly more likely than those with limited access to be frequent drinkers- both light and heavy. However, this model has stronger predictive power for women than men, indicating that work environment is explaining more about the type of drinker a woman is.

When examining this model with control variables, the independent variable work environment remains to be significant in these same instances. Furthermore, when age is significant, those who are older are less likely to be drinkers as compared to younger

respondents. Among men and women, those who have ever been married are less likely to be heavy-frequent drinkers than light-infrequent, controlling for other variables in the model.

Table 5-4: Logistic regression coefficients measuring the effect of work environment on drinker profile.

Model 13:	*Abstainer Exp (B)*		*Light-Frequent Exp (B)*		*Heavy-Infrequent Exp (B)*		*Heavy-Frequent Exp (B)*	
	Female	*Male*	*Female*	*Male*	*Female*	*Male*	*Female*	*Male*
Work Environment			1.136* **1.164***	1.266** **1.291****			1.836** **2.069****	1.495** **1.335***
Age		3.511*		0.326*	0.592*	0.575*		0.367**
Income					0.745*			
Marital Status Ever Married							0.210*	0.310*
Education Less than University			0.513*	-		7.568*		
Females- N= 623, R^2 = 0.122; Males- N= 532, R^2 = 0.085 *Females- N= 615, R^2 = 0.165; Males- N= 515, R^2 = 0.296*								

Note: ** indicates significance at the .001 level; * indicates significance at the .05 level. Odds ratios reported in bold indicate results of main predictor variables when analysed with control variables. Odds ratios less than "1" indicate a negative association; greater than "1" signifies a positive association.
- Reference category for marital status- never married, education- one or more university degrees.

Work Environment and Heavy Drinking

Model 14 examining the work environment and heavy drinking shows that a number of relationships are significant (refer to Table 5-5). As access to alcohol increases, the odds in favour of drinking six or more drinks less than monthly, monthly, two to three times per week and four or more times a week versus never, increase for male respondents. Among female respondents, as access to alcohol increases, the odds in favour of drinking six or more drinks monthly and two to three times per week increase. Once control variables are entered, work environment is significant for both females and

males independently who are drinking two to three times per week. Finally, there are no gender differences in the variance explained by this model.

Table 5-5: Logistic regression coefficients measuring the effect of work environment on heavy drinking.

Model 14:	*Less than Monthly Exp (B)*		*Monthly Exp (B)*		*2-3 times/Week Exp (B)*		*4+ times/Week Exp (B)*	
	Female	*Male*	*Female*	*Male*	*Female*	*Male*	*Female*	*Male*
Work Environment		1.116*	1.177*	1.212**	1.914** **1.785****	1.366** **1.209***		1.484*
Age	0.528**	0.636**	0.440**	0.496**		0.419**		0.213*
Income								
Marital Status Ever Married				0.349*				
Education Less than University		1.625*		2.183**				
Females- N= 655, R^2 = 0.041; Males- N= 548, R^2 = 0.039 *Females- N= 595, R^2 = 0.211; Males- N= 509, R^2 = 0.214*								

Note: ** indicates significance at the .001 level; * indicates significance at the .05 level. Odds ratios reported in bold indicate results of main predictor variables when analysed with control variables. Odds ratios less than "1" indicate a negative association; greater than "1" signifies a positive association.
- Reference category for marital status- never married, education- one or more university degrees.

Work Environment and Drinking at Work

Concerning drinking at work (Model 15), easier access to alcohol in and around the work environment, increase the odds of ever having consumed alcohol while at work versus never for both male and female respondents. However, this model is a stronger predictor for male than female respondents as specified by the variance explained. Thus, the work environment explains more about male drinking at work than female.

When taking into consideration the control variables, the original significant relationship between work environment and drinking while at work remains, controlling

for the other variables in the model. Thus, it appears that the work environment is a key predictor for consuming alcohol while at work.

Work Environment and Consuming Alcohol Within Four Hours of Arriving at Work

Examining Model 16 in Table 5-6 shows that a one-unit increase in the work environment scale increases the odds in favour of ever having consumed alcohol within four hours of arriving at work versus never by a factor of 1.3 for female respondents and a factor of 1.5 for male respondents. Even when controlling for the socio-demographic variables in this model, there remains a significant association between work environment and consuming alcohol within four hours of arriving at work. Once again, this model is a stronger predictor for male than female respondents as specified by the variance explained. Thus, the work environment explains more about male drinking prior to work than female.

Table 5-6: Logistic regression coefficients measuring the effect of work environment on drinking at work and within four hours of arriving at work.

Models 15 & 16:	*Ever Consumed at Work Exp (B)*		*Ever Consumed within Four Hours Exp (B)*	
	Female	*Male*	*Female*	*Male*
Work Environment	1.491**	1.621**	1.263**	1.481**
	1.531**	**1.667****	**1.206***	**1.475****
Age				
Income			1.515*	1.495*
Marital Status Ever Married			0.290**	
Education Less than University	0.386**			
	Females- N= 656, R^2 = 0.158; Males- N= 551, R^2 = 0.221 *Females- N= 596, R^2 = 0.195; Males- N= 510, R^2 = 0.248*		Females- N= 656, R^2 = 0.040; Males- N= 550, R^2 = 0.130 *Females- N= 596, R^2 = 0.138; Males- N= 509, R^2 = 0.185*	

Note: ** indicates significance at the .001 level; * indicates significance at the .05 level; Odds ratios reported in bold indicate results of main predictor variables when analysed with control variables. Odds ratios less than "1" indicate a negative association; greater than "1" indicates a positive relation.
- Reference category for marital status- never married, education- one or more university degrees.

Gender Composition of an Occupation, Work Environment and Drinker Profile

The final set of models examine the full relationship of the workplace culture and drinking pattern (refer to Table 5-7). It should first be noted that gender differences exist regarding the variance explained in the following three models. The model has stronger predictive power for male respondents than female.

When analyzing Model 17, there are a number of significant relationships. As access to alcohol increases, the odds in favour of being a light-frequent and heavy-frequent drinker as compared to light-infrequent drinkers increase. In addition, men working in predominantly female-dominated occupations are more likely to be heavy-frequent as compared to light-infrequent drinkers, than are men in male-dominated positions, which holds once controls are entered. In addition, the work environment index is still significantly related for those male and female frequent drinkers even with control variables. The same trend emerges among respondents regarding age- as employees get older, they are more likely to abstain from alcohol consumption. Finally among both male and female employees who have ever been married, they are less likely to be heavy-frequent drinkers as compared to light-infrequent drinkers than those who have never been married.

Model 18 parameter estimates shows once again that the work environment is a significant predictor of frequent drinking for both male and female employees. For female employees, a one-unit increase on the work environment scale increases the odds in favour of being a heavy-frequent drinker compared to a light-infrequent drinker by a factor of 1.8 (1.5 for male employees), controlling for gender composition. In addition, a one-unit increase on the work environment scale increases the odds in favour of being a

light-frequent drinker compared to a light-infrequent drinker by a factor of 1.1 for women and 1.3 for men, controlling for gender composition. These relationships hold even after controlling for the socio-demographic variables. It was also found that women in mix-gender occupations are more likely to be light-frequent drinkers, although this relationship disappeared with the entry of control variables. In addition, new relationships emerged showing that men working in female-dominated occupations are less likely to be heavy-frequent drinkers as compared to light-infrequent drinkers, controlling for the remaining variables. Among women, it was found that for those working in female-dominated occupations, they are less likely to be abstainers as compared to light-infrequent drinkers, than women in male-dominated positions. Age was significant when examining heavy-infrequent drinkers for both men and women (older individuals less likely to drink), as well as for heavy-frequent drinkers among men but in the same direction as in the former finding.

The parameter estimates of Model 19 reflect those in earlier models regarding the work environment. Both female and male respondents who have easier access to alcohol are significantly more likely than those with limited access, to be light-frequent and heavy-frequent drinkers as compared to light-infrequent drinkers, controlling for gender composition. In addition, with every one unit increase in gender composition by deciles, men are more likely to be heavy drinkers- both infrequent and frequent. Among males the relationship with gender composition remains only for the heavy-frequent drinkers. Age and marital status continue to be significant variables in the same direction as with other models.

Table 5-7: Logistic regression coefficients measuring the effect of gender composition of an occupation and work environment on drinker profile.

	Abstainer Exp (B)		*Light-Frequent Exp (B)*		*Heavy-Infrequent Exp (B)*		*Heavy-Frequent Exp (B)*	
	Female	*Male*	*Female*	*Male*	*Female*	*Male*	*Female*	*Male*
***Model 17:* Gender Composition in 2 Categories**								
Female-Dominated	2.461* **3.716***							2.394* **2.738***
Work Environment			1.136* **1.165***	1.272** **1.297****			1.835** **2.056****	1.518** **1.355****
Age		3.746*			0.594*	0.564*		0.355**
Income					0.739*			
Marital Status Ever Married							0.212*	0.306*
Education Less than University			0.512*			6.619*		
Females- N= 678, R^2 = 0.065; Males- N= 558, R^2 = 0.110 *Females- N= 615, R^2 = 0.178; Males- N= 515, R^2 = 0.309*								
***Model 18:* Gender Composition in 3 Categories**								
Female-dominated	**0.307***							**0.312***
Mix-gender			2.018*					
Work Environment			1.126* **1.152***	1.265** **1.288****			1.836** **2.105****	1.500** **1.351****
Age		3.448*			0.582*	0.557*		0.355**
Income					0.739*			
Marital Status Ever Married							0.215*	0.293*
Education Less than University			0.503*			6.605*		
Females- N= 678, R^2 = 0.080; Males- N= 558, R^2 = 0.116 *Females- N= 615, R^2 = 0.189; Males- N= 515, R^2 = 0.393*								
***Model 19:* Gender Composition in Deciles**	**1.239***					1.144*		1.137* **1.223***
Work Environment			1.131* **1.156***	1.273** **1.302****			1.841** **2.069****	1.539** **1.396****
Age		3.515*			0.594*	0.564*		0.358*
Income					0.742*			
Marital Status Ever Married							0.211*	0.278*
Education Less than University			0.512*			5.994*		0.409*
Females- N= 678, R^2 = 0.067; Males- N= 558, R^2 = 0.109 *Females- N= 615, R^2 = 0.176; Males- N= 515, R^2 = 0.310*								

Note: ** indicates significance at the .001 level; * indicates significance at the .05 level. Odds ratios reported in bold indicate results of main predictor variables when analysed with control variables. Odds ratios less than "1" indicate a negative association; greater than "1" signifies a positive association.
- Reference category for gender composition is male dominated; marital status- never married, education- one or more university degrees.

Gender Composition of an Occupation, Work Environment and Heavy Drinking

The next set of models (20-22) examine the workplace culture and heavy drinking (refer to Table 5-8). Once again, there are gender differences in the three models examined regarding variance explained with stronger power for males than females. However with control variables, this difference decreases in Models 21 and 22, showing limited gender differences. In general it was found that as access to alcohol increases, the odds in favour of drinking six or more drinks also increases for female and male employees, however only when examining drinking two to three times per week does the relationship persist.

Model 21 shows that male employees with work environments that permit easy access to alcohol, significantly increase their odds of drinking six or more drinks on one occasion significantly. Female employees with work environments that permit easy access to alcohol, increase their odds of drinking six or more drinks on one occasion both monthly and two to three times per week, although only the latter relationship holds once control variables are introduced. Finally, males in female-dominated occupations have lower odds of drinking heavily monthly. This relationship remains with control variables.

Assessment of parameter estimates for Model 22 shows yet again the importance of the work environment as a predictor of heavy drinking. Furthermore, gender composition by deciles is significant for male respondents who drink six or more beverages monthly, two to three times per week, and more than four times per week- all relationships are sustained even with control variables.

Table 5-8: Logistic regression coefficients measuring the effect of gender composition of an occupation and work environment on heavy drinking.

	Less than Monthly Exp (B)		*Monthly Exp (B)*		*2-3 times/Week Exp (B)*		*4+ times/Week Exp (B)*	
	Female	*Male*	*Female*	*Male*	*Female*	*Male*	*Female*	*Male*
***Model 20:* Gender Composition in 2 Categories**								
Female-Dominated						3.331*		
Work Environment		1.127*	1.177*	1.227**	1.910** **1.804****	1.399** **1.225***		1.514*
Age	0.528**	0.637**	0.440**	0.495**		0.409**		0.209*
Income								
Marital Status Ever Married				0.349*				
Education Less than University				2.031*				
Females- N= 655, R^2 = 0.042; Males- N= 548, R^2 = 0.055 *Females- N= 615, R^2 = 0.176; Males- N= 515, R^2 = 0.310*								
***Model 21:* Gender Composition in 3 Categories**								
Female-dominated		0.575*		0.459** **0.395****				
Mix-gender								
Work Environment		1.112*	1.175*	1.251** **1.150***	1.884** **1.739***	1.374**		1.589*
Age	0.527**	0.614**	0.442**	0.480**		0.401**		0.204*
Income								
Marital Status Ever Married				0.343*				
Education Less than University								
Females- N= 655, R^2 = 0.048; Males- N= 548, R^2 = 0.072 *Females- N= 595, R^2 = 0.220; Males- N= 509, R^2 = 0.248*								
***Model 22:* Gender Composition by Deciles**		1.078*		1.152* **1.163***		1.190* **1.210***		1.190* **2.029***
Work Environment		1.138*	1.177*	1.256** **1.159***	1.911** **1.811****	1.427** **1.257***		1.675* **1.507***
Age	0.527**	0.633**	0.439*	0.485**		0.408**		0.208*
Income								
Marital Status Ever Married				0.324**				
Education Less than University								
Females- N= 655, R^2 = 0.042; Males- N= 548, R^2 = 0.068 *Females- N= 595, R^2 = 0.212; Males- N= 509, R^2 = 0.238*								

Note: ** indicates significance at the .001 level; * indicates significance at the .05 level. Odds ratios reported in bold indicate results of main predictor variables when analysed with control variables. Odds ratios less than "1" indicate a negative association; greater than "1" signifies a positive association.
- Reference category for gender composition is male dominated; marital status- never married, education- one or more university degrees.

Gender Composition of an Occupation, Work Environment and Drinking at Work

The next three sets of models look at the consumption of alcohol while at work. Yet again, gender differences emerge for the variance explained where there is a stronger predictive power for male respondents than female, indicating that the predictors better explain drinking at work by male employees.

Model 23 (table 5-9) takes into consideration the independent variables of work environment and gender composition (in two categories). It appears that in this model, the variable of gender composition is important since it is significant for both male and female respondents, although only among women does it remain significant. In addition, work environment is significant and remains significant once control variables are entered for both male and female employees.

The next model (24) shows, once again, the importance of the work environment in predicting alcohol use among employees. In addition, gender composition shows some significant associations. Among female respondents, working with mainly women decreases the odds of consuming alcohol while at work. Among male employees, working in a mix-gender occupation versus a male-dominated occupation increases the odds of having ever consumed alcohol, controlling for work environment. Adding the control variables shows a significant association with work environment and having consumed alcohol while at work, but among males, the significant relationship with gender composition disappears while it is maintained among females.

Finally, as with the previous models, work environment continues to contribute to the explanation of consuming alcohol while at work. Again, this is confirmed with the parameter estimates, which show that work environment is significant. This relationship persists with the entry of the socio-demographic variables. Moreover, gender

composition remains as a significant relationship for female respondents, but not for males.

Gender Composition of an Occupation, Work Environment and Arriving at Work Within Four Hours of Consuming Alcohol

The final three models to be investigated in this chapter consider the effects of the workplace culture and consuming alcohol within four hours of arriving at work (refer to Table 5-9). It appears that the gender composition variable does not contribute to the explanation of drinking alcohol prior to arriving at work in any of the models, however work environment continues to be an important variable. Gender differences emerge again for the variance explained where there is a stronger predictive power for male respondents than female, indicating that the predictors better explain drinking prior to work by male employees.

In Models 26-28 the findings consistently show that regardless of gender, those with work environments that permit easy access to alcohol are more likely to have ever consumed alcohol prior to arriving at work compared to those who have never. With the exception of one case (Model 27 for female respondents), this relationship does not change even once control variables are included.

Table 5-9: Logistic regression coefficients measuring the effect of gender composition of an occupation and work environment on drinking at work and within four hours of arriving at work.

	Ever Consumed at Work Exp (B)		*Ever Consumed within Four Hours Exp (B)*	
	Female	*Male*	*Female*	*Male*
***Models 23 & 26:* Gender Composition in 2 Categories**				
Female-dominated	1.890* **2.081***	0.507*		
Work Environment	1.491** **1.512****	1.621** **1.665****	1.261* **1.199***	1.481** **1.475****
Age			0.631*	
Income			1.537*	1.495*
Marital Status Ever Married			0.295*	
Education Less than University	0.380**			
Females- N= 656, R^2 = 0.171; Males- N= 551, R^2 = 0.238 *Females- N= 596, R^2 = 0.208; Males- N= 510, R^2 = 0.257*		Females- N= 656, R^2 = 0.041; Males- N= 550, R^2 = 0.130 *Females- N= 596, R^2 = 0.139; Males- N= 509, R^2 = 0.185*		
***Models 24 & 27:* Gender Composition in 3 Categories**				
Female-dominated	0.471* **0.417***			
Mix-gender		2.080*		
Work Environment	1.486** **1.515****	1.573** **1.624****	1.248*	1.518** **1.515****
Age			0.623*	
Income			1.516*	1.477*
Marital Status Ever Married			0.289*	
Education Less than University	0.383**			
Females- N= 656, R^2 = 0.173; Males- N= 551, R^2 = 0.236 *Females- N= 596, R^2 = 0.211; Males- N= 510, R^2 = 0.257*		Females- N= 656, R^2 = 0.055; Males- N= 550, R^2 = 0.144 *Females- N= 596, R^2 = 0.154; Males- N= 509, R^2 = 0.196*		
***Models 25 & 28:* Gender Composition in Deciles**	1.140* **1.159***	0.899*		
Work Environment	1.482** **1.510****	1.598** **1.650****	1.254* **1.196***	1.471** **1.467****
Age			0.619*	
Income			1.533*	1.498*
Marital Status Ever Married			0.306*	
Education Less than University	0.389**			
Females- N= 656, R^2 = 0.174; Males- N= 551, R^2 = 0.233 *Females- N= 596, R^2 = 0.212; Males- N= 510, R^2 = 0.254*		Females- N= 656, R^2 = 0.052; Males- N= 550, R^2 = 0.131 *Females- N= 596, R^2 = 0.150; Males- N= 509, R^2 = 0.186*		

Note: ** indicates significance at the .001 level; * indicates significance at the .05 level; Odds ratios reported in bold indicate results of main predictor variables when analysed with control variables. Odds ratios less than "1" indicate a negative association; greater than "1" indicates a positive relation. -Reference category for gender composition is male dominated; marital status never married, education- one or more university degrees.

Discussion of Findings

Findings from this chapter indicate some very interesting results, especially when considering gender composition of an occupation, which is differentially impacting the various drinking variables. Returning to the first proposed research question, "How is occupation associated with drinking patterns?", it appears that there is little support for hypothesis 1 stating employees in male-dominated occupations are more likely to exhibit increased alcohol consumption than employees in female-dominated occupations. It appears that the results are mixed when examining the first set of Models (1-12).

There are several instances when employees working in female-dominated occupations are found to have increased odds of drinking, as compared to those in male-dominated positions. Quite interesting is the additional finding that employees are just as likely to be men as they are women, although the variance explained was generally stronger (albeit not by very much) for male as compared to female respondents. In other words, it was found that in some cases, women and men working in female-dominated occupations have an increased likelihood to be drinking- whether it is at work or when examining heavy drinking, however such models were stronger in their ability to predict male versus female drinking. Among male respondents, female-dominated positions are better predictors of those who consume heavily; namely, men who are classified as heavy drinkers. As found among women, male-dominated positions also predict drinking at work for men.

The only significant findings that were in the direction of the proposed hypothesis were found among women in female-dominated occupations who reported drinking at work. Women in female-dominated occupations had lower odds than women in male-

dominated occupations to report ever drinking at work. In addition, it was found that among women, with an increase in males in an occupation, there was also an increase in the odds of drinking while at work.

There was strong support for hypothesis 2, which stated work environments where alcohol is easily accessible are more likely to be comprised of employees who exhibit increased alcohol consumption than work environments where alcohol is difficult to access. The findings are consistent throughout, and these associations mostly held upon adding the socio-demographic variables to the models. When considering heavy drinking, only two of the original six relationships persisted. Thus, although work environment is a key predictor for heavy drinking, it appears to be a stronger and more significant predictor when considering those respondents who drink heavily two to three times per week. An additional significant finding is that for both male and female respondents who have easier access to alcohol, they are more likely to be light-frequent and heavy-frequent drinkers than light-infrequent. Thus, easier access to alcohol is associated with the greater probability of becoming a frequent drinker, however these models better predicted female drinker profiles than male.

Considering the overall research question, which takes into account the total impact of the workplace culture on drinking, shows a number of patterns. First when examining drinker profile, gender composition is a more significant predictor than work environment for abstaining from alcohol, in particular among females, whereas among male respondents, gender composition is a significant predictor of heavy-frequent drinking. Second, work environment is a stronger predictor of "frequent" drinking (i.e. light-frequent and heavy-frequent) than is gender composition.

When examining heavy drinking (six or more drinks on one occasion), work environment remains to be a key variable at predicting heavy drinking for both male and female respondents, particularly when predicting those who consume heavily monthly and two to three times per week. Gender composition predicts drinking in the hypothesized direction, however it appears to be a better predictor of drinking for male rather than female employees. The opposite findings arise when taking into account alcohol consumption while at work.

Gender composition is a significant predictor of drinking at work for female employees, but not for males. In addition, the results are in the anticipated direction, except in one case when women in female-dominated occupations were more likely than women in male-dominated positions, to have ever consumed alcohol while at work. Work environment once again shows its association with alcohol consumption regardless of the respondent's gender. With easier access to alcohol, both male and female respondents have greater odds to have ever consumed alcohol while at work.

Finally, when examining alcohol consumption prior to arriving at work, the only significant variable for employees is the work environment. As predicted, easier access to alcohol increases one's odds to arrive at work within hours of having consumed alcohol. None of the models showed any significant relationships with gender composition.

Overall, work environment was found to be a key and consistent variable at predicting drinking patterns among the current sample of Alberta employees. It is an unfailing predictor for both men and women, and furthermore, persists with the introduction of several socio-demographic variables. Gender composition on the other

hand, presents mixed results and is not as clear at predicting drinking patterns. With the hopes of clarifying findings from previous research, three different measures were used to operationalize gender composition. It seems however, the current findings have raised more questions about the manner in which gender composition of an occupation is associated with alcohol consumption, than they have actually answered.

Finally, it must be noted that in several of the models examined gender composition initially was not significant. However, with the introduction of the socio-demographic variables, the relationships developed into significant models. This change is more often than not, due to a suppressor variable (e.g., in this instance, any combination of the socio-demographic variables). A variable qualifies as a suppressor when its inclusion leads to a standardized regression coefficient of a predictor to be larger than it is in the absence of the suppressor variable (Pedhazur, 1997). Thus, the result of a significant relationship when at the outset one did not exist, is the result of correlation between one or more of the *predictor* variables. The significance that appears in the above-mentioned models is not due to gender composition predicting the dependent variables, but due to the association of gender composition with the demographic variables. In other words, gender composition is in fact predicting any one of the socio-demographic variables of age, income, marital status, and education.

Links to Theory & Previous Research

How do the proposed formulations and findings from previous research coincide with the current results? To reiterate, there is limited research examining the effects of gender composition on drinking, and there is even less research that considers the unique findings that have emerged from this study- the effects of men in female-dominated

occupations. One study that did consider this (Davidson & Cooper, 1984) found that, among men working in typically female environments was associated with heavier drinking, which corresponds with some of the results from this study. However, most of the research conducted in this area has generally found those who work in male-dominated positions consume more alcohol, and have more opportunity to drink (Blum & Roman, 1997; Cho, 2004; Kraft et al., 1993; Lisansky-Gomberg, 1994; Svare, Miller & Ames, 2004; Wilsnack & Wilsnack, 1995; Wilsnack et al., 1994). This however, was not supported with the current results, regardless of the way in which gender composition was operationalized.

The workplace culture perspective, which posits that drinking norms are developed within a particular workplace, assumes the occupational subculture may promote drinking and possibly heavy drinking. More specifically, when an occupation has historically been comprised of one gender, it is heavily influenced by it (Ames & Rebhun, 1996). As indicated, there is little evidence that shows females in male-dominated positions are drinking similar to their male counterparts. Furthermore, the results of this study show that in at least one instance, males working primarily with women are *more* likely to be heavy-frequent drinkers than men in male-dominated positions. Clearly, this does not indicate a trend of increased alcohol consumption by men in female-dominated occupations, but is an area for future research.

The question remains to be answered however, why is gender composition not consistently significant across the different models examined? In contrast to the hypotheses and formulations proposed earlier within this thesis, it is more likely that other important and more critical factors are associated with drinking patterns. Whether

or not one is employed with mainly men or women appears to have little bearing on drinker profile and heavy alcohol consumption. Thus, it is more plausible that other factors such as those examined (e.g., work environment), as well as those not examined (e.g., religion, medical ailments, pregnancy, etc) are correlated with the way in which an individual drinks.

It was also observed that women in female-dominated occupations had higher odds of consuming alcohol at work as compared to women working in male-dominated positions. This may be related to the type of work performed by women. For instance, "occupations in food and beverage"[26] which consists of waiters and waitresses in bars and restaurants, are female-dominated. It is not uncommon for women and men in such positions to be bought drinks while on duty, and consequently drinking at work. In fact, upon specifically examining female food and beverage employees with the current sample, it was found that 100% (54 female respondents), reported ever drinking at work. This particular finding is consistent with other research showing those in the food service industry having the highest prevalence of heavy drinking (Kjaerhein et al., 1995; Parker & Harford, 1992).

When considering the overall impact of the workplace culture on drinking, it was found that when gender composition significant, it was a stronger predictor of light drinking. More specifically, given the general trends discussed so far, it might be that although respondents are drinking when working with a majority of women, overall they are in fact light drinkers. Thus, as proposed by the workplace culture perspective, the

[26] This title is based on the 2001 National Occupation Classification system as outlined in chapter 4 of this dissertation.

dominance of one gender, in this case women, in an occupation appears to emphasize their "lighter" drinking norms as opposed to the men who form a minority.

The results of this study coincide very well with the proposed perspectives and literature regarding the work environment. The results showing the importance of the work environment as being associated with frequent drinking, heavy drinking (i.e., two to three times/week), drinking at work and prior to work are consistent with the workplace culture perspective. It claims that the physical and social availability of alcohol within a workplace are two important factors that are determinants for the escalation of drinking into problem drinking. When there is the ease of purchasing alcohol during the workday, and/or there is a social network of people to drink with, it is more likely that heavy drinking will occur (Ames & Janes, 1992; Kjaerheim, et al., 1995; Shore, 1990; Trice & Sonnenstuhl, 1988; Macdonald, Wells & Wild, 1999). Furthermore, there is a level of social pressure to drink within such work environments (Macdonald, Wells and Wild, 1999).

Although it cannot be determined whether or not social pressure indeed exists with the current sample, it has been established in other research that the work environment is key to drinking. The current data suggest support for the importance of the work environment when examining all measures of drinking patterns and most importantly, these findings emerge regardless of gender signifying the importance of such a variable. As with previous models examined within this chapter, as the accessibility to alcohol increases, the likelihood of ever having consumed alcohol at work or within four hours of arriving also increases.

Based on the current findings, there is significant evidence to indicate that the work environment is associated with an employee's drinking patterns. As other researchers have suggested (Ames & Rebhun, 1996; Trice & Sonnenstuhl, 1990), the workplace may be as great an influence on individual drinking patterns as ethnicity and family background due to the fact employees spend more time in the workplace than they do with their families. Therefore, it is no surprise that the workplace is an institution that has this ability to be associated with alcohol consumption irrespective of gender, as verified by the current findings.

Thus, the social and physical availability of alcohol, as proposed by the workplace culture perspective, are two key factors for associating the drinking patterns of employees. This finding associating the work environment with patterns of drinking was maintained regardless of the socio-demographic variables. Perhaps even more importantly, when the overall model of the workplace culture was considered, the work environment of an employee remained to be a strong and consistent predictor of overall drinking for both men and women. This finding reiterates the critical consequences of alcohol availability at work, near work, or having colleagues who frequently go out for drinks.

Accordingly, the availability of alcohol is more important an indicator for drinking than those with whom one works. If alcohol is not readily available, it is related to a decrease in the likelihood of drinking. Thus, the idea presented by the workplace culture perspective that the workplace is a subculture imperative for encouraging and sustaining drinking, is supported by the findings of this study.

Finally, there are two points worth discussing as related to the variance explained in the aforementioned models. The first deals with the fact that in most of the models, the variance explained is low (i.e., less than 25%). This finding signifies one of two issues- first is that there are important variables missing, which can account for the low variance. There are other aspects to the workplace culture and job stress that were not accounted for within this chapter. As speculated by previous research, alcohol use by co-workers, work-related problems involving supervisors or colleagues, work involving entertaining or being entertained by clients, suppliers, or other business contacts, constant traveling, overall low job satisfaction, possible job loss, role ambiguity, lack of autonomy, are factors that are all related to both the workplace culture and job stress, but were not taken into consideration within the present thesis. Future research should examine such possible causes more closely in order to determine the true association with alcohol consumption.

The second issue is related to the fact that most of what has been previously developed in terms of alcohol theory and research is based on a male model. Researchers have been able to neglect women as subjects of study due to the fact that heavy and problem drinking is more prevalent among men than women. The consequences of men's drinking are also more apparent and appear more socially disruptive than women's problems (Wilsnack & Wilsnack, 1997). Since men constitute the greater proportion of alcohol users, it follows that the measures for estimating alcohol prevalence may not be reflective of the types of issues encountered by women, despite findings that female problem drinking manifests itself very differently from the patterns exhibited by men.

Most surveys, including the current AADAC survey, carry within them an inherent male bias as reflected by the measures for alcohol consumption. Despite evidence indicating the need for gender appropriate models, there is the continuation within sociology as well as other disciplines, to adapt male-based models both theoretically and practically. Such models are used to account for the experiences of women, which are not always applicable. Although there is demand for female-based standards, there is limited work in this area to develop such models. Nonetheless, new models are needed for women since, as shown in the current thesis, the existing ones are not sufficient.

Conclusion

This chapter has examined the effect of the workplace culture on drinking patterns. As already discussed, there are two main elements to the definition of the workplace culture- the gender composition of an occupation and the work environment. Although research in this area has been limited, it was considered to be an important area of investigation given the recent findings that alcohol consumption, alcohol problems and dependence are serious issues, especially when related to employee productivity.

Based on the literature reviewed, a major factor contributing to the development of alcohol problems and dependence is one's occupation. Historically, occupations that have been dominated by males have been found to have higher alcohol consumption than those that have been female-dominated. The findings from this thesis are mixed since there does not appear to be a relationship that is as straightforward or precise. This may be due in part to the various measures used to quantify gender composition since different measures were found to have different relationships with drinking patterns.

Moreover, the physical and social availability of alcohol within or around the work site has been shown to be a critical indicator of increased alcohol consumption. As demonstrated by the current findings, the workplace culture has the ability to encourage drinking so that those workplaces with easy access and availability to alcohol consist of employees who are drinkers and who also consume heavily.

CHAPTER 6: JOB STRESS & DRINKING PATTERNS: DATA ANALYSIS & DISCUSSION OF FINDINGS

Overall, job characteristics contributing to job stress (JCCS) was found to be a better predictor of drinking than perceived job stress among a sample of Alberta employees. However, this variable was found to not be entirely dependable or clear with its consistency at predicting drinking. In addition, JCCS was more persistent among male employees, suggesting that men are more likely to use alcohol to deal with such stressors than women. In contrast to expected findings, males with more JCCS were less likely to have ever consumed alcohol while at work. It is proposed that this is due to the fact people do not drink at work as in the past. Furthermore, an employee's perception of job stress is not a significant predictor of drinking for either men or women.

The objective of this current chapter is to investigate the effect of job stress on drinking patterns. The use of substances such as alcohol, to deal with stress is referred to as avoidance-focused coping. This coping strategy refers to the use of alcohol or other drugs to either make the individual feel better, or get through the ordeal. Although individuals can choose options other than alcohol for dealing with the stressors in their life, this chapter will only focus on alcohol use. A number of studies indicate a relationship between stress and alcohol use (Crum et al., 1995; Gianakos, 2002; Roxborough, 1998; Seeman & Seeman, 1992), while others show that the consumption of alcohol is not a method for dealing with stressful events (Breslin et al., 1995; Brady & Sonne, 1999; Greenberg & Grunberg, 2000). This chapter aims to resolve some of the contradictory findings in this area.

This chapter aims to answer the second set of research questions as stated in Chapter 4. Namely, what is the association of job stress and drinking patterns? More specifically, how does perceived job stress affect drinking patterns? How do job characteristics affect drinking patterns? The two hypotheses tested are: *Hypothesis 3:*

Perceived job stress among employees is more likely to be associated with increased alcohol consumption. *Hypothesis 4:* Employees with job characteristics contributing to job stress are more likely to exhibit increased alcohol consumption than those without these characteristics.

Review of Measures

As stated elsewhere, there are two measures for job stress. Perceived job stress is measured by asking, "how stressful do you consider your job?", which was recoded into those respondents who indicate job stress and those who do not. As discussed in Chapter 4, an index was created in order to measure job characteristics contributing to job stress which is based on five questions concerning the respondent's job duties. The score obtained for this index is treated as a semi-equal interval variable. The minimum score obtainable is "0", and the maximum is "5", reflecting the two extremes of this index.

Regarding the dependent variables, the drinker profiles, measures of heavy drinking, drinking at work, and drinking within four hours of arriving at work are the same as in the previous chapter. In addition, a complete discussion of these measures can be found in Chapter 4.

Summary of Findings

The first key finding shows that *whether or not a respondent reports job stress is not a significant predictor of how alcohol is consumed.* Moreover, it appears that perceived job stress and drinking are only significant associations for male employees. This finding may be due to the different coping mechanisms used by men and women,

suggesting that men are more inclined to use alcohol to deal with stress than their female counterparts.

The results of this chapter also show limited support for the notion that employees with job characteristics contributing to job stress will be prompted to drink. Although it was found that in certain instances the number of job characteristics predicts drinking rather than abstaining, it was found to be *more consistently true among male rather than female respondents.* This gender differential has been observed in past research as well.

Although job characteristics contributing to job stress were found to be a better predictor of drinking than perceived job stress when considering both variables in the same model, on the whole *neither variable was a consistent or strong predictor for the outcome variables* in this chapter. Yet again, significant associations were more common among male than female respondents.

Descriptive Analyses

Job stress is measured using two concepts- perceived job stress and job characteristics contributing to job stress (JCCS). When examining perceived job stress, the vast majority of female and male respondents (83.7% and 80.9% respectively) reported job stress, with women reporting more stress than men. This is consistent with other research, which has found women perceive their workplaces as more stressful, hectic, fast-paced, and busy than men.

The second component constituting job stress is the constructed index, ranging from 0 to 5, in order to measure job characteristics that have been found to contribute to job stress at work. When examining job characteristics, the five points considered

include: boredom, repetitive tasks, on-call work, shift work and working long hours. The mean for females for this measure was 1.99, while for male respondents it was 2.47. Thus, males have more JCCS than do females.

Most female respondents (28.9%) have only one job characteristic, whereas 28.4% of males have three characteristics that contribute to job stress. The smallest numbers of women have all five characteristics (3.3%) while among men, the smallest proportions have one characteristic and five characteristics (6.1% for each characteristic).

Multinomial Logistic Regression Results

Multinomial logistic regression is used in order to assess the best predictors for the outcome variables. Detailed results are presented in tables with the appropriate odds ratios where ratios greater than 1 indicate a positive relationship, and odds ratios less than 1 indicate a negative relationship. As stated in the outset of this chapter, the aim is to answer the second research question that focuses on job stress and drinking patterns.

Job Stress and Drinker Profile

Beginning with Model 1, which considers the effect of perceived job stress on drinker profile, there is one significant association (refer to Table 6-1). Males experiencing job stress have higher odds to be light-frequent drinkers than light-infrequent as compared to men who reported no stress. This relationship holds once control variables are entered. Not surprisingly, older respondents and those who have ever been married are less likely to be heavy drinkers. Whereas female respondents with less than a university degree are less likely to be light-frequent drinkers, among males

they are more likely to be heavy-infrequent drinkers. It should also be noted that there are gender differences regarding the variance explained. The model has stronger predictive power for male than female respondents, indicating that job stress is a better explanatory factor for drinker profile for men.

Table 6-1: Logistic regression coefficients measuring the effect of gender composition of an occupation on drinker profile.

	Abstainer Exp (B)		*Light-Frequent Exp (B)*		*Heavy-Infrequent Exp (B)*		*Heavy-Frequent Exp (B)*	
	Female	*Male*	*Female*	*Male*	*Female*	*Male*	*Female*	*Male*
***Model 1:* Perceived Job Stress**								
Job Stress				1.837 * **1.831***				
Age					0.578*	0.640*		0.356**
Income								
Marital Status Ever Married							0.230*	0.286*
Education Less than University			0.539*			7.995*		
Females- N= 710, R^2 = 0.003; Males- N= 538, R^2 = 0.016 *Females- N= 644, R^2 = 0.104; Males- N= 540, R^2 = 0.227*								

Note: ** indicates significance at the .001 level; * indicates significance at the .05 level. Odds ratios reported in bold indicate results of main predictor variables when analysed with control variables. Odds ratios less than "1" indicate a negative association; greater than "1" signifies a positive association.
- Reference category for perceived job stress is no job stress; marital status- never married, education- one or more university degrees.

Job Stress and Heavy Drinking

Model 2 initially shows only one significant association (refer to Table 6-2). Males who report job stress have higher odds than those who do not report stress to consume six or more drinks monthly or less as compared to never. This relationship holds once control variables are entered indicating the importance of perceived job stress as a predictor of heavy but infrequent alcohol consumption. Another finding is the

emergence of perceived job stress as a predictor of consuming six or more drinks monthly among male respondents, however this findings is likely due to suppressor variables as discussed earlier (see Chapter 5). As with Model 1, older respondents regardless of sex are less likely to have ever consumed six or more drinks on one occasion. In addition, education and marital status are significant. Once again, there are gender differences concerning the variance explained, where the model for men is stronger than that for women.

Table 6-2: Logistic regression coefficients measuring the effect of job stress on heavy drinking.

	Less than Monthly Exp (B)		*Monthly Exp (B)*		*2-3 times/Week Exp (B)*		*4+ times/Week Exp (B)*	
	Female	*Male*	*Female*	*Male*	*Female*	*Male*	*Female*	*Male*
***Model 2:* Perceived Job Stress**								
Job Stress		1.667* **2.306***		**2.438***				
Age	0.528**	0.601**	0.422**	0.458**	0.342*	0.374**		0.334*
Income								
Marital Status Ever Married				0.351*				
Education Less than University		1.777*		2.541*				
Females- N= 685, R^2 = 0.002; Males- N= 574, R^2 = 0.015 *Females- N= 622, R^2 = 0.188; Males- N= 533, R^2 = 0.226*								

Note: ** indicates significance at the .001 level; * indicates significance at the .05 level. Odds ratios reported in bold indicate results of main predictor variables when analysed with control variables. Odds ratios less than "1" indicate a negative association; greater than "1" signifies a positive association.
-Reference category for perceived job stress is no job stress; marital status- never married, education- one or more university degrees.

Job Stress and Drinking at Work & Within Four Hours of Arriving at Work

Model 3, perceived job stress and drinking at work, shows no significant associations, and furthermore a very small proportion of the variance is explained for

both male and female respondents (refer to Table 6-3). Even with control variables, reporting job stress does not lead one to consume alcohol at work. Among the socio-demographic control variables, education and age are both significant. Female respondents with less than a university education versus those with more than university, as well as older respondents are less likely to have ever consumed alcohol while at work, as compared to those who have never consumed at work.

Finally, Model 4 (Table 6-3) also shows no significant relationships between perceived job stress and consuming alcohol within four hours of arriving at work. Once again, although gender differences exist, the variance explained for each sex is small. Marital status is significant for both men and women, whereas income is only significant for men. As income increases among male employees, there are greater odds (46.5%) for drinking within four hours of arriving at work.

Table 6-3: Logistic regression coefficients measuring the effect of job stress on drinking at work and prior to arriving at work.

	Ever Consumed at Work Exp (B)		*Ever Consumed within Four Hours Exp (B)*	
	Female	*Male*	*Female*	*Male*
***Models 3 & 4:* Perceived Job Stress**				
Job Stress				
Age	0.776*			
Income				1.465*
Marital Status Ever Married			0.262*	0.416*
Education Less than University	0.474*			
Females- N= 623, R^2 = 0.038; Males- N= 534, R^2 = 0.041				
			Females- N= 623, R^2 =0.108; Males-N= 533, R^2 = 0.077	

Note: ** indicates significance at the .001 level; * indicates significance at the .05 level; Odds ratios reported in bold indicate results with control variables. Odds ratios less than "1" indicate a negative association; greater than "1" signifies a positive one.
- Reference category for perceived job stress is no job stress; marital status- never married, education- one or more university degrees.

Job Characteristics Contributing to Job Stress and Drinker Profile

As with other models examined so far, there are gender differences with regard to the variance explained. The model has stronger predictive power for male than female respondents, demonstrating that JCCS better explains drinker profile for men.

Two significant associations emerged in Model 5 (refer to Table 6-4). For every one unit increase in JCCS, the odds of being a heavy-infrequent drinker for a male employee increases by a factor of 1.5. Thus, there is a 54.8% increase in the odds of being a heavy-infrequent drinker versus a light-infrequent drinker for males, which holds when controls are entered into the model. Among females, there is a 68.6% increase in the odds of being a heavy-frequent drinker versus a light-infrequent drinker, however this relationship disappears with control variables.

In addition, age, marital status, and education are significant predictors. Older respondents are less likely to be drinking, and those who have ever been married are less likely than single respondents to be heavy-frequent drinkers as compared to light-infrequent drinkers. Finally, the same trend as in Model 1 appeared for respondents with less than university- female respondents with less than a university degree are more likely to be light-infrequent drinkers but among males, they are more likely to be heavy-infrequent drinkers.

Job Characteristics Contributing to Job Stress and Heavy Drinking

Examining Model 6, there are three significant findings that are all in the same direction (refer to Table 6-5). Among both male and female employees, for each increase in JCCS, there is also an increase in the odds of consuming six or more drinks monthly

Table 6-4: Logistic regression coefficients measuring the effect of JCCS on drinker profile.

Model 5:	*Abstainer Exp (B)*		*Light-Frequent Exp (B)*		*Heavy-Infrequent Exp (B)*		*Heavy-Frequent Exp (B)*	
	Female	*Male*	*Female*	*Male*	*Female*	*Male*	*Female*	*Male*
JCCS						1.548** **1.361***	1.686*	
Age					0.565*	0.668*		0.344**
Income								
Marital Status Ever Married							0.232*	0.275*
Education Less than University			0.523*			7.039*		
Females- N= 709, R^2 = 0.011; Males- N= 583, R^2 = 0.036 *Females- N= 643 , R^2 = 0.107; Males- N= 538, R^2 = 0.241*								

Note: ** indicates significance at the .001 level; * indicates significance at the .05 level. Odds ratios reported in bold indicate results of main predictor variables when analysed with control variables. Odds ratios less than "1" indicate a negative association; greater than "1" signifies a positive association.
- Reference category for marital status- never married, education- one or more university degrees.

(20.7% increase for males; 73.1% increase for females). Once control variables are entered into this model, the findings related to women with increased JCCS and heavy drinking on a monthly basis hold. Moreover, female employees with more JCCS also have higher odds to consume six or more drinks less than monthly as compared to never, however this relationship disappears with control variables. It should also be noted that in the initial model (i.e., without controls), there was a higher predictive power for female respondents than male indicating that JCCS better explained heavy drinking in women.

In addition, age is significant showing that older employees, regardless of gender, are less likely than younger employees to consume six or more drinks. Among males who have ever been married, it was found they are less likely than single males to drink monthly as compared to never, controlling for all other variables. Finally, employees with less than university were more likely than those with one or more university degrees

to drink less than monthly (men and women) and monthly (men only) as compared to never.

Table 6-5: Logistic regression coefficients measuring the effects of JCCS on heavy drinking.

Model 6:	*Less than Monthly Exp (B)*		*Monthly Exp (B)*		*2-3 times/Week Exp (B)*		*4+ times/Week Exp (B)*	
	Female	*Male*	*Female*	*Male*	*Female*	*Male*	*Female*	*Male*
JCCS	1.163*		1.731** **1.427***	1.207*				
Age	0.537**	0.631**	0.466**	0.427**	0.377*	0.380**		0.327*
Income								
Marital Status Ever Married				0.350*				
Education Less than University	1.495*	1.568*		2.383*				
Females- N= 684, R^2 = 0.040; Males- N= 573, R^2 = 0.010 *Females- N= 621, R^2 = 0.198; Males- N= 532, R^2 = 0.211*								

Note: ** indicates significance at the .001 level; * indicates significance at the .05 level. Odds ratios reported in bold indicate results of main predictor variables when analysed with control variables. Odds ratios less than "1" indicate a negative association; greater than "1" signifies a positive association.
- Reference category for marital status- never married, education- one or more university degrees.

Job Characteristics Contributing to Job Stress and Drinking at Work and Prior to Arriving at Work

When considering JCCS and drinking alcohol at work (Model 7), it appears that among men, as JCCS increases they have lower odds to have ever consumed alcohol while at work (refer to Table 6-6). This relationship persists in the same direction even once control variables are entered. Only level of education is significant where females with less than university are less likely than females with one or more university degrees, to have ever consumed alcohol while at work. Moreover, there are gender differences in the variance explained. The model has stronger predictive power for men, indicating that JCCS is a more sound measure relating to drinking at work than it is for women. However when examining the following model, the opposite is found.

Table 6-6: Logistic regression coefficients measuring the effect of JCCS on drinking at work and within four hours of arriving at work.

Models 7 & 8:	*Ever Consumed at Work Exp (B)*		*Ever Consumed within Four Hours Exp (B)*	
	Female	*Male*	*Female*	*Male*
JCCS		0.775* **0.747***	1.359*	
Age				
Income				1.500*
Marital Status Ever Married			0.266*	0.392*
Education Less than University	0.454*			
Females- N= 685, R^2 = 0.003; Males- N= 576, R^2 = 0.022 *Females- N= 622, R^2 = 0.041;* *Males- N= 533, R^2 = 0.052*				
			Females- N= 685, R^2 = 0.021;Males-N= 575, R^2 = 0.004 *Females- N= 622, R^2 =0.117;Males-N= 532, R^2 = 0.091*	

Note: ** indicates significance at the .001 level; * indicates significance at the .05 level; Odds ratios reported in bold under second set of numbers indicate results with control variables. Odds ratios less than "1" indicate a negative association; greater than "1" signifies a positive association.
-Reference category for marital status- never married, education- one or more university degrees.

Based on Model 8, it appears that female employees with more JCCS have higher odds to have ever consumed alcohol within four hours of arriving at work, as compared to those women who report never having done so. Moreover, the variance explained is greater for women than for men. Although this does not change once the socio-demographic variables are entered into this model, the significant relationship with JCCS disappears for women. Among both men and women, single individuals are more likely

to have consumed alcohol within four hours of arriving at work. Also, income was positively associated with male respondents but not female.

Perceived Job Stress, Job Characteristics Contributing to Job Stress and Drinker Profile

Model 9 shows there are gender differences in the variance explained. Once again, the model has stronger predictive power for male rather than female respondents. Furthermore, based on Model 9, there are two significant relationships (refer to Table 6-7). As JCCS increases among female employees, there are greater odds (67.1%) of being a heavy-frequent drinker as compared to a light-infrequent drinker. This relationship however, disappears once the socio-demographic controls are entered. Among male respondents, as JCCS increases there are greater odds (57.2%) for being a heavy-infrequent drinker as compared to a light-infrequent drinker. This significant relationship holds for male respondents once control variables are entered.

Males with more JCCS have lower odds to be abstainers versus light-infrequent drinkers, controlling for all other variables. Regarding perceived job stress, males who reported stress have higher odds than males who did not report stress to be light-frequent drinkers. This association also holds with control variables. Age and marital status both show negative relationships. However examining education, males with less than university are more likely to be heavy-infrequent drinkers as compared to light-infrequent drinkers, controlling for all other variables.

Table 6-7: Logistic regression coefficients measuring the effects of perceived job stress, JCCS on drinker profile.

	Abstainer Exp (B)		*Light-Frequent Exp (B)*		*Heavy-Infrequent Exp (B)*		*Heavy-Frequent Exp (B)*	
	Female	*Male*	*Female*	*Male*	*Female*	*Male*	*Female*	*Male*
***Model 9:* Perceived Job Stress**								
Job Stress				1.910* **1.932***				
JCCS		**0.510***				1.572** **1.368***	1.671*	
Age					0.567*	0.670*		0.338**
Income								
Marital Status Ever Married								0.269*
Education Less than University			0.515*			6.992*		
Females- N= 709, R^2 = 0.014; Males- N= 583, R^2 = 0.055 *Females- N= 643, R^2 = 0.110; Males- N= 538, R^2 = 0.255*								

Note: ** indicates significance at the .001 level; * indicates significance at the .05 level. Odds ratios reported in bold indicate results of main predictor variables when analysed with control variables. Odds ratios less than "1" indicate a negative association; greater than "1" signifies a positive association.
- Reference category for perceived job stress is no job stress; marital status- never married, education- one or more university degrees.

Perceived Job Stress, Job Characteristics Contributing to Job Stress and Heavy Drinking

It appears that JCCS is only significant for female respondents who consume six or more drinks on one occasion less than monthly and monthly (refer to Table 6-8). In fact, for every unit increase in JCCS, these women have greater odds (16.5% and 72.5% respectively) of drinking heavily. Consequently, the variance explained for women is higher- although quite small- than that for men. Thus it appears that overall job stress better explains heavy drinking for women than men.

However once control variables are entered, only consuming six or more drinks monthly remains, and the variance explained becomes comparable for both men and women. Among male respondents, perceived job stress emerges as significant only once controls are entered. A number of socio-demographic variables are significant, including

age and education among both male and female respondents, as well as marital status for males only. As with previous models, age and marital status show a negative relationship with heavy drinkers. For educational status, men and women with less than university are more likely to consume six or more drinks on one occasion less than monthly and monthly (men only), as compared to never.

Table 6-8: Logistic regression coefficients measuring the effects of perceived job stress and JCCS on heavy drinking.

	Less than Monthly Exp (B)		*Monthly Exp (B)*		*2-3 times/Week Exp (B)*		*4+ times/Week Exp (B)*	
	Female	*Male*	*Female*	*Male*	*Female*	*Male*	*Female*	*Male*
Model 10: Perceived Job Stress								
Job Stress		**2.223***		**2.458***				
JCCS	1.165*		1.725** **1.407***					
Age	0.536**	0.611**	0.460**	0.455**	0.369*	0.375**		0.314*
Income								
Marital Status Ever Married				0.347*				
Education Less than University	1.505*	1.689*		2.617*				
Females- N= 684, R^2 = 0.041; Males- N= 573, R^2 = 0.024 *Females- N= 621, R^2 = 0.200; Males- N= 532, R^2 = 0.229*								

Note: ** indicates significance at the .001 level; * indicates significance at the .05 level. Odds ratios reported in bold indicate results of main predictor variables when analysed with control variables. Odds ratios less than "1" indicate a negative association; greater than "1" signifies a positive association.
- Reference category for perceived job stress is no job stress; marital status- never married, education- one or more university degrees.

Perceived Job Stress, Job Characteristics Contributing to Job Stress and Drinking at Work and Prior to Arriving at Work

When examining Model 11, it appears that male respondents with JCCS have a decreased odds (24%) of ever having consumed alcohol while at work compared to those

who have never consumed at work. In fact, this relationship persists with the socio-demographic variables. Moreover, perceived job stress emerges as a significant predictor of consuming alcohol at work for male respondents. Males who reported job stress have higher odds than those men who have not reported stress, to have ever consumed alcohol while at work.

Finally, Model 12 initially shows that among female respondents, as JCCS increases, there is also greater odds (37.5%) of ever having consumed alcohol within four hours of arriving at work. However, this relationship disappears once controls are entered into the model. Once again the variance explained is stronger for female than male respondents, indicating that job stress better explains drinking prior to arriving at work for women, but not for men.

Table 6-9: Logistic regression coefficients measuring the effect of perceived job stress and JCCS on drinking at work and within four hours of arriving at work.

	Ever Consumed at Work Exp (B)		*Ever Consumed within Four Hours Exp (B)*	
	Female	*Male*	*Female*	*Male*
***Models 11 & 12:* Perceived Job Stress**				
Job Stress		**2.249***		
JCCS		0.760* **0.726***	1.375*	
Age		0.736*		
Income				1.502*
Marital Status Ever Married			0.265*	0.388*
Education Less than University	0.450*			
Females- N= 685, R^2 = 0.003; Males- N= 576, R^2 = 0.034 *Females- N= 622, R^2 = 0.042;* *Males- N= 533, R^2 = 0.069*		Females- N= 685, R^2 = 0.023; Males- N= 575, R^2 = 0.004 *Females- N= 622, R^2 = 0.118;* *Males- N= 532, R^2 = 0.093*		

Note: ** indicates significance at the .001 level; * indicates significance at the .05 level; Odds ratios reported in bold under second set of numbers indicate results with control variables. Odds ratios less than "1" indicate a negative association; greater than "1" signifies a positive association.
- Reference category for perceived job stress is no job stress; marital status- never married, education- one or more university degrees.

Discussion of Findings

The fundamental proposition guiding the analysis of this chapter was the assumption that employees who experience job stress are more likely than those who do not report stress, to turn to alcohol as a method of coping. Overall, the findings from this chapter show limited support for such statements. Returning to the third research question, how does perceived job stress affect drinking patterns, there is very limited support for hypothesis 3 stating perceived job stress among employees is more likely to lead to increased alcohol consumption.

Whether or not a respondent reports job stress has little to do with the way in which he drinks. When job stress was found to be significant, it was only true for male respondents, which may explain the greater variance found for this group. Males reporting job stress were more likely to be light-frequent drinkers than light-infrequent. In addition, it was found that men with job stress were more likely to consume six or more drinks less than monthly versus never. Finally, job stress had no association with whether or not an employee consumed alcohol while at work or prior to arriving at work, and furthermore, a very small proportion of the variance was explained for all respondents.

There is also limited support for hypothesis 4- employees with job characteristics contributing to job stress are more likely to exhibit increased alcohol consumption than those without these characteristics. An interesting finding that emerged when considering JCCS was that male employees with these job features were less likely to have ever consumed alcohol while at work. This was an unanticipated finding, however it is very likely that employees simply do not consume alcohol while at work as other

researchers have speculated (Sonnenstuhl, 1996). However, it still remains to be seen whether this pattern will re-emerge when considering the workplace culture and job stress together, which will be investigated in Chapter 7 of this dissertation. It was shown however, that as JCCS increases among male employees, the odds of being categorized as heavy-infrequent than light-infrequent drinker also increases. Nonetheless, JCCS has little association with an employee's overall drinking patterns.

Considering the overall research question, which takes into consideration the total impact of job stress on drinking, shows that JCCS is a stronger predictor for increased alcohol consumption than perceived job stress. Although a better predictor, JCCS is still a partial predictor of drinking since it is more applicable among male employees than female. For instance, among female employees, JCCS initially appeared as significant when considering heavy-frequent drinking, having six or more drinks less than monthly, and consuming alcohol prior to arriving at work. In all these instances, the relationships disappeared with control variables, indicating the lack of importance as a predictor.

When JCCS was significant among male respondents, the relationship persisted even with socio-demographic variables, indicating the importance of JCCS at predicting drinking. Thus, it appears that there are gender differences with JCCS, which is more pertinent in explaining increased alcohol consumption among males than females. The same can be said for perceived job stress since when it was significant, it was accurate only among male respondents and not female. Both these findings confirm the results of the R-squared as it was generally stronger for male than female respondents.

Overall, JCCS was found to be a better predictor of increased alcohol consumption than perceived job stress, among a sample of Alberta employees. However,

this variable was found to not be entirely dependable or clear with its consistency at predicting drinking patterns. In addition, JCCS was more persistent among male employees, suggesting that men use alcohol to deal with such stressors more than women. In contrast to expected findings, males with more JCCS were less likely to have ever consumed alcohol while at work. It is proposed that this is due to the fact people simply do not drink at work. Furthermore, an employee's perception of job stress is not a significant indicator of drinking for either men or women.

Links to Theory & Previous Research

A number of studies have found a relationship between stress and alcohol use (Crum et al., 1995; Gianakos, 2002; Roxborough, 1998; Seeman & Seeman, 1992). In addition, the work stress perspective views and addresses a variety of conditions as causes of psychological and physiological distress, which employees seek to ease through drinking (Trice & Sonnenstuhl, 1988). To a certain extent, the results of this study support previous findings and theory, although it is limited and not as straightforward as originally anticipated.

As previously discussed, perceived job stress is not a significant predictor of alcohol consumption, which has also been found elsewhere (Breslin et al., 1995; Brady & Sonne, 1999; Cooper et al., 1990; Greenberg & Grunberg, 2000; Vasse et al., 1998). It is still an unexpected finding that believing or feeling your job is stressful, is not a contributing factor to drinking. Although the vast majority of respondents reported job stress (82.5%), and consequently believe such job stressor(s) exist, their choice of alcohol as a coping strategy is not transpiring.

Harris and Fennell (1988) found that the link between job stress and alcohol consumption was mediated by beliefs regarding the utility of drinking as a means of coping with job stress, which is also in line with the work stress perspective. In other words, individuals who believe that alcohol has the ability to help them deal with stress will drink when faced with such pressure as compared to those who do not believe alcohol will help. Thus, it is possible that despite the personal assessments of stress reported by respondents, this sample consists of more employees who do not hold beliefs that alcohol can alleviate stress.

Another possible explanation, indicates that the negative consequences of daily stressors, such as those one may experience at work, which are perceived to be under the individual's control are reduced through the use of active coping styles (i.e., thinking through problems and taking action with the goal of solving them). Thus, those who experience such every day stressors may show less risk for heavy alcohol use if active strategies are part of their coping style (Hussong, 2003). The work stress perspective also puts forward this viewpoint by indicating individuals make a choice for a coping strategy and tactics for coping, which may not necessarily involve alcohol consumption (Zaccaro & Riley, 1987). Yet another explanation proposes a reverse direction of the relationships examined. Possibly, individuals who consume alcohol are more likely to feel stressed- an association that was not considered. As proposed earlier, the use of alcohol to deal with stress is not the only option. In order to evaluate this assumption, the use of other substances as possible outlets for stress will be carried out in Chapter 8.

What has emerged within this chapter as somewhat more important than one's potential conflict in a work environment, is the number of job characteristics that have

been found to contribute to job stress (Ames & Janes, 1992; Trice & Sonnenstuhl, 1990; Sutherland & Cooper, 1988; Williams, 2003). Consistent with the work stress perspective, physical properties of the working environment such as monotony, shift-work and boredom, contribute to feelings of stress. Such stress can then be used as a rationale for drinking, which is usually learned in the context of work (Trice & Sonnenstuhl, 1990).

Moreover, it has been found that because work is an important source of meaning, identity, dignity, and morale, job factors that are stressful will leave a "negative mark" on the behaviour and well-being of employees (Greenberg & Grunberg, 2000). On the other hand, it has also been shown that although the workplace can and does contribute to the development and maintenance of beliefs around stress and drinking, such impressions are mainly formed *outside* the workplace (Greenberg & Grunberg, 2000). The current findings suggest some association with the use of alcohol to cope with job factors related to stress, however this was more so for male rather than female employees. This gender differential is not entirely surprising given findings from past research.

It has been shown that women are more likely to be in occupations that are lower in substantive complexity, motor skills, physical demands, and undesirable working conditions (Lennon, 1987). This may help explain why JCCS was only significant for male employees and not female- women's occupations are not characteristic of known factors contributing to stress because our knowledge is largely shaped by theory and research that has focused primarily on men as subjects of study. This rationale provides one possible explanation for the gender differential noted in the current results, however

future research should examine such associations more closely, and focus on developing new theory that is better applied to women.

Patterns of association between measures of stressful conditions and high alcohol consumption among men, but not for women have also been found. Gianakos (2002) reported that women indicated working harder and longer when experiencing stress than men, which may reflect the low status and low autonomy characteristic of female-dominated positions. In such careers, women's coping choices are limited to those that are readily accepted and condoned as appropriate. The same rationale can be applied for men in male-dominated positions who choose to use alcohol within a male peer group since it is accepted and seen as a common method for dealing with stress. Nonetheless, other studies have observed that with higher levels of stress experienced by female employees, there was also increased frequency of drinking (Cho, 2004; Romelsjo et al., 1992). The current results do not support this finding.

Even so, 84% of women and 81% of men from the current sample reported job stress. Although both men and women are stressed as a result of work, there are differential factors explaining the reasons those men who experience such stress are more likely to use alcohol, whereas women with similar job stress are not. Research in the area of gender and work helps to clarify possible motives for the current findings.

To begin, women are entering more professional fields, such as dentistry (Statistics Canada, 2003), and consequently, may be facing greater pressures because of such recent developments, which in turn may affect their behaviour at work. More specifically, despite stress stemming from work, women may feel pressure to abide by their prescribed female role and consequently make them less likely to engage in "deviant

behaviour" (Crum et al., 1995). Another explanation indicates that drinking is incompatible with women's household obligations. Women working outside the home face more hours of work and are more likely to experience spillover[27] (Bromet et al., 1990), thus reducing the likelihood of drinking due to the lack of time to drink. Related to this point is the fact that women generally face greater responsibility for the care of others. Significant evidence indicates that women, more than men adjust their jobs around family responsibilities (Emmons et al., 1990; Hochschild, 1989; Mennino & Brayfield, 2002; Payne, 2002), and women unquestioningly accept their roles of family caregiver in addition to the responsibility of paid work (Emmons et al., 1990; Mennino & Brayfield, 2002). Given these overall findings, consuming alcohol would gravely impair such tasks and may help explain the reasons for which women were not found to use alcohol to the same extent as men, despite similar reports of stress. Future research should investigate such explanations further

Another important finding from this chapter concerns drinking at work. It has been suggested that researchers take for granted that employees continue to consume alcohol while at work (Sonnenstuhl, 1996). Based on the current findings however, it was found that when drinking at work was significant, it was in the opposite direction of the proposed hypothesis. In other words, as JCCS increased, the odds of ever consuming alcohol while at work decreased among male employees. This suggests that despite stressful working conditions, employees are not drinking at work - it is no longer a "practice" that is carried out within the workplace.

[27] This specifically refers to "stress spreading from work to family, from family to work, or in both directions simultaneously" (Bromet et al., 1990: 134).

Conclusion

This chapter has examined the impact of job stress on drinking patterns. As previously defined, there are two components to job stress- perceived job stress and job characteristics contributing to job stress. Past research considering alcohol use has been more consistent at showing the reliability of the various job characteristics contributing to stress, than the more abstract concept of job stress.

The findings from the current analysis show very little support for perceived job stress and drinking. There was however, some support for JCCS and drinking. Consistent with previous research, the current findings were significant but weak, among only male respondents. Additional analyses need to examine how, if at all, the workplace culture helps to further explain the relationship between stress and drinking. As previously discussed, this will be explored in Chapter 7 of the current thesis.

CHAPTER 7: WORKPLACE CULTURE, JOB STRESS & DRINKING PATTERNS: DATA ANALYSIS & DISCUSSION OF FINDINGS

Overall, the work environment of an employee is a key factor for determining drinking in general. Among current drinkers, whether or not alcohol is available on the work site, near the work site or colleagues drink socially after work, is associated with the way an individual consumes alcohol. Also, an important predictor of alcohol consumption is job characteristics contributing to job stress, although this variable was not as constant with its ability to predict drinking. Nonetheless, it emerged as a significant variable, and one that must not be disregarded. The less influential predictors however, were consistently unreliable. Perceived job stress was not related to drinking in any of the models examined in this chapter. Thus, personal assessments of stress are inaccurate predictors of either male or female drinking. Although a non-significant variable, but to a less extent than job stress, was gender composition of an occupation. Gender composition was rarely significant and was unexpectedly an inconsequential predictor.

One of the objectives of the current project is to assess the overall association between the workplace culture, job stress and drinking. Relatively few studies have compared drinking across occupations and even fewer have examined the impact of all three aforementioned concepts. This chapter will investigate this gap in research in order to determine if the workplace culture and job stress contribute to alcohol consumption, and if so, in what manner. As a result, the current thesis will contribute to new research and explanations in this area.

This chapter aims to answer the last research question namely, *what is the association between the workplace culture, job stress and drinking patterns?* As already indicated, this chapter is exploratory since the establishment of relationships between work, job stress, and drinking patterns is scarce, and can only be based on well-informed deductions stemming from the current literature and perspectives. It is in part exploratory because of the unique nature of the study, although some of the relationships have been independently examined beforehand (i.e., stress and drinking).

Summary of Findings

The key finding of this chapter shows that the *work environment is a critical predictor of alcohol consumption for both male and female employees.* Without fail, the ease at which employees can access alcohol has a significant relation to drinking. These findings emerged in Chapter 5, and have been reconfirmed in the current chapter. However, the second element of the workplace culture, gender composition of an occupation, *was rarely found to be significant* indicating the inconsequentiality of the majority of people (i.e., the majority gender) of those with whom one works.

Another major finding shows that *perceived job stress has unconditionally no impact on drinker profile, episodes of heavy drinking as well as drinking at work or prior to arriving at work.* In other words, personal assessments of stress are not related to drinking for either male or female employees. In contrast, *job characteristics contributing to job stress (JCCS) emerged as a significant predictor of drinker type for men,* but not for women. JCCS was however a *constant predictor of monthly heavy drinking among women,* although it did not predict heavy drinking for men.

As stated at the outset of this chapter, *overall the work environment of an employee is a key-determining factor for drinking in general.* In addition, *JCCS is an important variable in certain circumstances,* however it is not as consistent a predictor of drinking as work environment. Finally, both *perceived job stress and gender composition of an occupation have little to no effect on the manner in which employees consume alcohol.*

Multinomial Logistic Regression Results

Multinomial logistic regression is used in order to assess the best predictors for the outcome variables. Detailed results are presented in tables with the appropriate odds ratios where ratios greater than 1 indicate a positive relationship, and odds ratios less than 1 indicate a negative relationship. As stated in the outset of this chapter, the aim here is to answer the final research question that focuses on the workplace culture, job stress and drinking patterns.

Workplace Culture, Job Stress and Drinker Profile

The first three models examine the impact of gender composition of an occupation, work environment, perceived job stress and job characteristics contributing to job stress (JCCS) on drinker profile. For all three models, the reference category is "light-infrequent" drinkers, signifying the group to which all comparisons are made. It should be noted that there are gender differences regarding the variance explained (i.e., R^2) in all three models. In the first two models, the models have stronger predictive power for male than female respondents, however in the final model in which gender composition is examined by deciles, there is essentially no difference (refer to Table 7-3).

A number of other significant relationships emerged in Model 1 for both male and female employees (refer to Table 7-1). Women working in female-dominated occupations have significantly greater odds (157%) than women in male-dominated jobs to be abstainers than light-infrequent drinkers. In contrast, men working in female-dominated occupations as compared to male-dominated positions have greater odds of 158.7% to be heavy-frequent than light-infrequent drinkers. Both these relationships

continued once control variables were entered (refer to Chapter 4 for a review of controls). Among both men and women, those with easier access to alcohol had higher odds to be both light-frequent (13.8% and 27.9% for women and men respectively), and heavy-frequent drinkers (increased odds of 81.3% and 53.5% for women and men respectively) as compared to light-infrequent. These associations remained even once the additional socio-demographic variables were introduced into these equations.

Among women, none of the job stress variables emerged as significant. Among men, it was initially found that those with more JCCS are 1.5 times more likely to be heavy-infrequent than light-infrequent drinkers. However, once control variables were entered this relationship disappeared. In addition, with controls a significant relationship emerged for men indicating that as JCCS increases, the odds of being a heavy-frequent drinker decrease.

Regarding the control variables, among women both age and income were negatively associated with heavy-infrequent drinking. In other words, as women age and as women earn more money, they are less likely to be heavy-infrequent drinkers as compared to light-infrequent drinkers. In addition, women with less than a university education versus those with one or more university degrees are less likely to be light-frequent drinkers than light-infrequent, which is contrary to the findings for men who are more likely to be light-frequent drinkers. Among men, older respondents are more likely to be abstainers than younger respondents; older employees are less likely to be heavy-infrequent and heavy-frequent drinkers as compared to light-infrequent drinkers.

As with Model 1, Model 2 shows that male and female employees with easy access to alcohol have higher odds of being light and heavy-frequent drinkers, even when

controlling for other variables in the model (refer to Table 7-2). It was also found that among men, for every one-unit increase in JCCS, the odds of being a heavy-infrequent drinker increases by a factor of 1.5, which held even with control variables. Although initially, gender composition did not appear to be significant for either men or women, the introduction of controls revealed a significant relationship. Women working in female-dominated jobs, have decreased odds of being abstainers as compared to light-infrequent drinkers. Among men, it was found that those working in female-dominated occupations to have lower odds than men in male-dominated jobs to be heavy-frequent drinkers. These results may be due to suppressor effects as discussed in Chapter 5.

Table 7-1: Logistic regression coefficients measuring the effect of the workplace culture and job stress on drinker profile.

Model 1:	*Abstainer Exp (B)*		*Light-Frequent Exp (B)*		*Heavy-Infrequent Exp (B)*		*Heavy-Frequent Exp (B)*	
	Female	*Male*	*Female*	*Male*	*Female*	*Male*	*Female*	*Male*
Gender Composition in 2 Categories								
Female-Dominated	2.566* **3.826****							2.587* **3.214***
Work Environment			1.138** **1.158****	1.279* **1.295****			1.813** **2.068****	1.535** **1.364****
Perceived Job Stress								
Job Stress								
JCCS						1.473**		**0.653***
Age		4.823*			0.582*	0.592**		0.322**
Income					0.745*			
Marital Status Ever Married							0.184*	0.280**
Education Less than University			0.488**			6.242*		
Females- N= 677, R^2 = 0.072; Males- N= 556, R^2 = 0.159 *Females- N= 614, R^2 = 0.185; Males- N= 513, R^2 = 0.344*								

Note: ** indicates significance at the .001 level; * indicates significance at the .05 level. Odds ratios reported in bold indicate results of main predictor variables when analysed with control variables. Odds ratios less than "1" indicate a negative association; greater than "1" signifies a positive association.
- Reference category for gender composition is male-dominated; perceived job stress- no job stress; marital status- never married, education- one or more university degrees.

A number of the socio-demographic variables were significant with this model. Older woman are less likely than younger ones to be heavy-infrequent drinkers as compared to light-infrequent. In addition, as incomes increases for women, they are less likely to be heavy-infrequent drinkers. It was also found that women who have ever been married are less likely than those who have never been married to be heavy-infrequent as compared to light-infrequent drinkers. Older men are less likely to be both heavy-infrequent and heavy-frequent drinkers. Marital status and education also were significant for frequent drinking.

Table 7-2: Logistic regression coefficients measuring the effect of the workplace culture and job stress on drinker profile.

Model 2:	*Abstainer Exp (B)*		*Light-Frequent Exp (B)*		*Heavy-Infrequent Exp (B)*		*Heavy-Frequent Exp (B)*	
	Female	*Male*	*Female*	*Male*	*Female*	*Male*	*Female*	*Male*
Gender Composition in 3 Categories								
Female-Dominated	**0.298***							**0.274***
Mix-Gender			**0.298***					
Work Environment			1.126**	1.286*			1.826**	1.518**
			1.144**	**1.295****			**2.123****	**1.371****
Perceived Job Stress								
Job Stress								
JCCS						1.485**		**0.681***
Age		4.822*			0.584**	0.592**		0.328**
Income					0.745*			
Marital Status Ever Married						6.242*	0.180*	0.265**
Education Less than University			0.477**		6.191*			
Females- N= 677, R^2 = 0.087; Males- N= 556, R^2 = 0.162								
Females- N= 614, R^2 = 0.198; Males- N= 513, R^2 = 0.347								

Note: ** indicates significance at the .001 level; * indicates significance at the .05 level. Odds ratios reported in bold indicate results of main predictor variables when analysed with control variables. Odds ratios less than "1" indicate a negative association; greater than "1" signifies a positive association.
- Reference category for gender composition is male-dominated; perceived job stress- no job stress; marital status- never married, education- one or more university degrees.

As with previous models, Model 3 also shows that employees who work in environments where alcohol is available have greater odds to be light-frequent and heavy-frequent drinkers (refer to Table 7-3). It was also shown that for men, as their proportion grows in a given occupation, so too do the odds of being a heavy-frequent drinker (15.3%), even with controls. Among men, JCCS and heavy-infrequent drinking initially emerged as significant, but this relationship did not hold with the addition of the control variables. Instead, with controls it was found that as JCCS increases, the odds of being a heavy-frequent drinker decrease by 34.2%.

Age and income were significant control variables for women, showing that as age and income increase (independent of one another), they are less likely to be heavy-infrequent drinkers. Moreover, women who have been married are less likely than single women to be heavy-frequent drinkers. Among men, the same patterns emerged with age where older men are less likely to be both heavy-infrequent and heavy-frequent drinkers. In addition, education and marital status were significant.

Workplace Culture, Job Stress and Heavy Drinking

The next three models take into consideration heavy drinking. The reference category for all models is those respondents who indicate they have "never" consumed six or more drinks on one occasion. Once again there are gender differences in the following models for variance explained, and once again the differences are minimal. Nonetheless, the model has stronger predictive power for men than for women suggesting that the workplace culture and job stress better explain heavy drinking in men as compared to women.

Table 7-3: Logistic regression coefficients measuring the effects of the workplace culture and job stress on drinker profile.

Model 3:	*Abstainer Exp (B)*		*Light-Frequent Exp (B)*		*Heavy-Infrequent Exp (B)*		*Heavy-Frequent Exp (B)*	
	Female	*Male*	*Female*	*Male*	*Female*	*Male*	*Female*	*Male*
Gender Composition in Deciles	**1.242****							1.153* **1.259****
Work Environment			1.133** **1.149****	1.281** **1.300****			1.821** **2.086****	1.558** **1.409****
Perceived Job Stress								
Job Stress								
JCCS						1.461**		**0.658***
Age		4.551*			0.582*	0.591**		0.326**
Income					0.748*			
Marital Status Ever Married							0.177*	0.251**
Education Less than University			0.487**			5.726*		
Females- N= 654, R^2 = 0.073; Males- N= 547, R^2 = 0.075 *Females- N= 594, R^2 = 0.225; Males- N= 508, R^2 = 0.245*								

Note: ** indicates significance at the .001 level; * indicates significance at the .05 level. Odds ratios reported in bold indicate results of main predictor variables when analysed with control variables. Odds ratios less than "1" indicate a negative association; greater than "1" signifies a positive association.
- Reference category for gender composition is male-dominated; perceived job stress- no job stress; marital status- never married, education- one or more university degrees.

Among women, there are two significant findings in Model 4 related to heavy drinking (refer to Table 7-4). As JCCS increases, the odds of consuming six or more drinks monthly also increase by 67.1%. There is also a positive relationship between work environment and consuming six or more drinks two to three times per week; for every one-unit increase in the work environment scale, the odds of heavy drinking increase by a factor of 1.9. Both these relationships remain once control variables are

entered into the model. Among men, those with easy access to alcohol have higher odds to consume heavily less than monthly (11.9%), two to three times per week (40.2%) and four or more times a week (51.8%). It was also found that men in female-dominated occupations are 3.4 times more likely than males in male-dominated positions to heavily drink two to three times per week. This finding persisted with controls.

Age was significant for both men and women when examining heavy drinking less than monthly and monthly, as well as two to three times per week and four or more times per week (men only). In all instances, older respondents are more likely to never have consumed six or more drinks during the previous twelve months. In addition, it was found that with control variables, men experiencing stress were less likely than those not experiencing stress to consume less than monthly and monthly as compared to never.

When considering Model 5, it was found that among women, as JCCS increases, there is an increased odds of 68.5% to drink heavily monthly as compared to never. Work environment was also significant for consuming two to three times per week (increased odds of 79.9%). Both these associations were significant even once control variables were entered into the model. Among women in female-dominated jobs, it was found they have higher odds than those in male-dominated jobs to consume six or more drinks two to three times a week. However, after running the appropriate analyses, SPSS produced a warning indicating a *quasicomplete separation* of data.[28] Thus, although the odds ratios are significant, they are not reportable and will not be reported as such for any of the variables, although the reader will be alerted if a quasicomplete separation occurs.

[28] The issue of separation refers to the presence of one or more variables that perfectly predict the outcome of interest (Zorn, 2005). Quasicomplete separation is elaborated upon in Appendix C.

Table 7-4: Logistic regression coefficients measuring the effects of the workplace culture and job stress on heavy drinking.

Model 4:	*Less than Monthly Exp (B)*		*Monthly Exp (B)*		*2-3 times/Week Exp (B)*		*4+ times/Week Exp (B)*	
	Female	*Male*	*Female*	*Male*	*Female*	*Male*	*Female*	*Male*
Gender Composition in 2 Categories								
Female-Dominated						3.351* **2.917***		
Work Environment		1.119**		1.219**	1.861** **1.786****	1.402** **1.226***		1.518*
Perceived Job Stress								
Job Stress		**0.449***		**0.455***				
JCCS			1.671** **1.361***					
Age	0.533**	0.634*	0.469**	0.476**		0.402**		0.187*
Income								
Marital Status Ever Married				0.340**				
Education Less than University				2.262*				
Females- N= 654, R^2 = 0.073; Males- N= 547, R^2 = 0.075 *Females- N= 594, R^2 = 0.225; Males- N= 508, R^2 = 0.245*								

Note: ** indicates significance at the .001 level; * indicates significance at the .05 level. Odds ratios reported in bold indicate results of main predictor variables when analysed with control variables. Odds ratios less than "1" indicate a negative association; greater than "1" signifies a positive association.
- Reference category for gender composition is male-dominated; perceived job stress- no job stress; marital status- never married, education- one or more university degrees.

Among males, work environment was a significant predictor of drinking six or more beverages monthly, two to three times per week, and four or more times a week. In addition, it was shown that men in female-dominated jobs have lower odds than men in male-dominated positions to have consumed monthly as compared to never (decreased odds of 52%), which held even after controls. None of the other relationships however, held once control variables were entered into the model.

As with other models, age was significant among respondents for consuming six or more drinks on one occasion less than monthly, monthly, two to three times per week

(men only) and four or more times per week (men only). Among male respondents, a number of new associations emerged among the main variables. Men experiencing job stress have higher odds than those not experiencing stress to drink less than monthly and monthly as compared to never. Also, males in mix-gender occupations have higher odds than males in male-dominated jobs to drink less than monthly as compared to never.

Table 7-5: Logistic regression coefficients measuring the effects of the workplace culture and job stress on heavy drinking.

Model 5:	*Less than Monthly Exp (B)*		*Monthly Exp (B)*		*2-3 times/Week Exp (B)*		*4+ times/Week Exp (B)*	
	Female	*Male*	*Female*	*Male*	*Female*	*Male*	*Female*	*Male*
Gender Composition in 3 Categories								
Female-Dominated				0.480* **0.405****				
Mix-Gender		**1.860***						
Work Environment				1.241**	1.799** **1.732****	1.375**		1.592*
Perceived Job Stress								
Job Stress		**2.220****		**2.164***				
JCCS			1.685** **1.373***					
Age	0.531**	0.612**	0.471**	0.459**		0.396**		0.172**
Income								
Marital Status Ever Married				0.333**				
Education Less than University				2.007*				
Females- N= 654, R^2 = 0.080; Males- N= 547, R^2 = 0.092 *Females- N= 594, R^2 = 0.235; Males- N= 508, R^2 = 0.271*								

Note: ** indicates significance at the .001 level; * indicates significance at the .05 level. Odds ratios reported in bold indicate results of main predictor variables when analysed with control variables. Odds ratios less than "1" indicate a negative association; greater than "1" signifies a positive association.
- Reference category for gender composition is male-dominated; perceived job stress- no job stress; marital status- never married, education- one or more university degrees.

The final model being considered for heavy drinking also shows that among women, for every one-unit increase in JCCS, there is also an increased odds of 65.7% to consume six or more drinks on one occasion monthly as compared to never (refer to Table 7-6). Yet again, there is a positive association between work environment and drinking two to three times per week. Among men, work environment was also a significant predictor of consuming six or more drinks at all rates. However, only consuming less than monthly was not significant when control variables were entered into the model. Finally, as the proportion of men in a given occupation increases, it was found that the odds of drinking monthly, two to three times per week and four or more times per week also increase. All relationships remained significant with control variables.

For both male and female respondents, age was significant. Older respondents are less likely to consume six or more drinks less than monthly, monthly, two to three times per week (men only) and four or more times per week (men only) as compared to never. Finally, it was shown that among men, those reporting job stress are less likely than those without stress to consume six or more drinks monthly as compared to never.

Table 7-6: Logistic regression coefficients measuring the effects of workplace culture and job stress on heavy drinking.

Model 6:	*Less than Monthl Exp (B)*		*Monthly Exp (B)*		*2-3 times/Week Exp (B)*		*4+ times/Week Exp (B)*	
	Female	*Male*	*Female*	*Male*	*Female*	*Male*	*Female*	*Male*
Gender Composition in Deciles				1.143** **1.166****		1.191* **1.224***		1.770* **2.133***
Work Environment				1.247** **1.151***	1.860** **1.794****	1.431** **1.262***		1.675** **1.507***
1.130*								
Perceived Job Stress								
Job Stress		**0.448****		**0.466***				
JCCS			1.657** **1.360***					
Age	0.532**	0.629**	0.468**	0.465**		0.402**		0.162**
Income								
Marital Status Ever Married				0.314**				
Education Less than University								
Females- N= 654, R^2 = 0.072; Males- N= 547, R^2 = 0.087 *Females- N= 594, R^2 = 0.225; Males- N= 508, R^2 = 0.261*								

Note: ** indicates significance at the .001 level; * indicates significance at the .05 level. Odds ratios reported in bold indicate results of main predictor variables when analysed with control variables. Odds ratios less than "1" indicate a negative association; greater than "1" signifies a positive association.
- Reference category for gender composition is male-dominated; perceived job stress- no job stress; marital status- never married, education- one or more university degrees.

Workplace Culture, Job Stress and Drinking at Work

The next three models take into consideration drinking at work. The reference category for all models is those respondents who indicate they have "never" consumed alcohol while at work. Refer to Tables 7-7 to 7-9 for all significant results, including those with control variables for both drinking at work and within four hours of arriving at work. Yet again, the model has stronger predictive power for male than female

respondents, indicating that workplace culture and job stress help explain drinking at work better for men.

Based on the findings from Models 7 to 9, among both male and female respondents, those with easier access to alcohol have higher odds to have ever consumed alcohol while at work. These relationships hold in all models even after the introduction of control variables. In addition, a negative association between JCCS and drinking at work was observed among males in all three models, including models with control variables. Thus, male employees with more JCCS have lower odds than those with few JCCS to have ever consumed alcohol at work.

Findings from Model 7 show that women working in female-dominated occupations are 2 times more likely than women in male-dominated positions to have ever consumed alcohol while at work. The opposite finding was observed for male respondents in female-dominated occupations- they had lower odds than men in male-dominated positions to have ever consumed alcohol at work, however this association disappeared with the introduction of controls into the model. Finally, education was only significant for female employees where those with less than university are less likely to have ever consumed alcohol at work.

When considering gender composition of an occupation in three categories (Model 8), women working in female-dominated positions have lower odds than women in male-dominated occupations to have ever consumed alcohol while at work, which is opposite to the findings from Model 7. Yet again, education emerged as the only significant control variable, and only so for female respondents. Among males, results show those working in mix-gender occupations are 1.9 times more likely than males in

male-dominated positions to have ever consumed alcohol, although this relationship disappears with the entry of control variables.

Table 7-7: Logistic regression coefficients measuring the effects of the workplace culture and job stress on drinking at work and within four hours of arriving at work.

Models 7 & 10:	*Ever Consumed a Work Exp (B)*		*Ever Consumed Within Four Hours Exp (B)*	
	Female	*Male*	*Female*	*Male*
Gender Composition in 2 Categories				
Female-Dominated	1.962* **2.133****	0.560*		
Work Environment	1.513** **1.520****	1.681** **1.688****	1.221*	1.510** **1.480****
Perceived Job Stress				
Job Stress				
JCCS		0.675** **0.683****		
Age				
Income			1.508*	1.509**
Marital Status Ever Married			0.290*	
Education Less than University	0.382**			
Females- N=655 R^2=0.174; Males- N= 550, R^2 = 0.279 *Females-N=595, R^2 = 0.210; Males- N= 509, R^2 = 0.291*		Females-N=655 R^2 = 0.054; Males- N= 549, R^2 = 0.139 *Females- N=595, R^2 = 0.146; Males- N=508, R^2 = 0.199*		

Note: ** indicates significance at the .001 level; * indicates significance at the .05 level. Odds ratios reported in bold indicate results of main predictor variables when analysed with control variables. Odds ratios less than "1" indicate a negative association; greater than "1" signifies a positive association.
- Reference category for gender composition is male-dominated; perceived job stress- no job stress; marital status- never married, education- one or more university degrees.

Finally, Model 9 results show that as the proportion of men in a given occupation increases, so too the odds that a woman will have ever consumed alcohol at work. In fact, every 10% increase in men increases the odds by 14.5% that a female has ever consumed alcohol at work. This relationship also holds with control variables. As with

previous models, education is the sole significant control variable, indicating those with less than a university education are also less likely to have ever consumed alcohol at work.

Workplace Culture, Job Stress and Arriving at Work Within Four Hours of Consuming Alcohol

The final set of models examines alcohol consumption four hours prior to arriving at work. The reference category for all models is those respondents who indicate they have "never" consumed alcohol prior to arriving at work. Refer to Tables 7-7 to 7-9 for all significant results, including those with control variables. As with all models examined in this chapter, there is more variance explained for male as compared to female respondents. Once again, it appears that the workplace culture and job stress explain drinking prior to work for men better than these predictors do for women.

For all models (10-12), only one variable was significant for both male and female respondents- work environment. Easier access to alcohol increases the odds of an employee having ever consumed alcohol prior to work. Even with the inclusion of control variables, these associations remain indicating the importance of the work environment for predicting alcohol consumption before work.

In addition, the same control variables were significant for all three models for men and women. Among women, income and marital status were significant. Women with higher incomes are more likely than those with lower incomes to have ever consumed alcohol within four hours of arriving at work, regardless of the way in which gender composition is measured. It was also found that women who have been married are less likely to have ever consumed alcohol prior to work. Among men, income was

the only significant predictor. As with women, those with higher incomes are also more likely to have ever consumed alcohol within hours of arriving at work.

Table 7-8: Logistic regression coefficients measuring the effects of the workplace culture and job stress on drinking at work and within four hours of arriving at work.

Models 8 & 11:	*Ever Consumed at Work Exp (B)*		*Ever Consumed Within Four Hours Exp (B)*	
	Female	*Male*	*Female*	*Male*
Gender Composition in 3 Categories				
Female-Dominated	0.453* **0.409****			
Mix-Gender		1.938*		
Work Environment	1.505** **1.515****	1.641** **1.655****	1.209**	1.537** **1.519****
Perceived Job Stress				
Job Stress				
JCCS		0.665** **0.676****		
Age				
Income			1.495*	1.490*
Marital Status Ever Married			0.288**	
Education Less than University	0.388**			
Females- N=655, R^2 =0.176; Males- N= 550, R^2 = 0.279 *Females-N=595, R^2 = 0.211; Males- N= 509, R^2 = 0.290*			Females-N=655, R^2 = 0.071; Males- N= 549, R^2 = 0.052 *Females- N= 595 R^2 =0.163; Males- N=508, R^2 = 0.209*	

Note: ** indicates significance at the .001 level; * indicates significance at the .05 level. Odds ratios reported in bold indicate results of main predictor variables when analysed with control variables. Odds ratios less than "1" indicate a negative association; greater than "1" signifies a positive association.
- Reference category for gender composition is male-dominated; perceived job stress- no job stress; marital status- never married, education- one or more university degrees.

Table 7-9: Logistic regression coefficients measuring the effects of the workplace culture and job stress on drinking at work and within four hours of arriving at work.

Models 9 & 12:	*Ever Consumed a Work Exp (B)*		*Ever Consumed Within Four Hours Exp (B)*	
	Female	*Male*	*Female*	*Male*
Gender Composition in Deciles	1.145** **1.159****			
Work Environment	1.502** **1.508****	1.664** **1.675****	1.217*	1.492** **1.473****
Perceived Job Stress				
Job Stress				
JCCS		0.669** **0.676****		
Age				
Income			1.510*	1.508**
Marital Status Ever Married			0.301*	
Education Less than University	0.394**			
Females-N=655,R^2 = 0.176; Males- N= 550, R^2 = 0.275 *Females-N=595,R^2 = 0.211;* *Males- N= 509, R^2 = 0.288*		Females-N=655,R^2 = 0.065 Males- N= 549, R^2 = 0.139 *Females- N=595,R^2=0.158* *Males- N=508, R^2 = 0.199*		

Note: ** indicates significance at the .001 level; * indicates significance at the .05 level. Odds ratios reported in bold indicate results of main predictor variables when analysed with control variables. Odds ratios less than "1" indicate a negative association; greater than "1" signifies a positive association.
- Reference category for gender composition is male-dominated; perceived job stress- no job stress; marital status- never married, education- one or more university degrees.

Discussion of Findings

This chapter evaluated the overall relationship between the workplace culture, job stress, and drinking patterns. Although workplace culture and job stress were independently assessed earlier, it remained unknown the effect the combination of these

predictors would have on drinking. As a result, the final research question took into account the overall relationship by asking: what is the association between the workplace culture, job stress, and drinking patterns? Few, if any studies have taken all of these predictors into account when investigating drinking.

When examining workplace culture, job stress and drinker profile, it was found that the work environment is associated with frequent drinking (i.e., light-frequent and heavy-frequent) across all models. However, the second component to the workplace culture, gender composition of an occupation, was rarely found to be significant. When this predictor was significant, conflicting findings arose.

Whether or not employees believe they are under stress has absolutely no correlation with drinking as measured by drinker profile, heavy drinking, drinking at work, and drinking prior to work. This pattern emerged with and without control variables indicating the lack of importance of perceived job stress at predicting drinking patterns. Finally, it was found that JCCS when significant, predicted drinker profile for men, but not for women. Overall, work environment was the strongest predictor for drinker type, while JCCS although a consistent predictor, was only valid for male respondents, signifying the importance of such factors among men.

When examining heavy drinking, similar patterns were found for drinker profile. Work environment was a better predictor of consuming six or more drinks on one occasion two to three times per week as compared to never, for both male and female respondents. Gender composition- as measured by deciles (i.e., 0-10%, 11-20%, etc)- was only significant for men consuming heavily monthly, two to three times a week and

four or more times a week. Thus, gender composition of an occupation was not an important indicator of heavy drinking, as with earlier models.

In addition, perceived job stress was once again an insignificant indicator of heavy drinking for both male and female employees. However, JCCS was valid for predicting female monthly heavy drinking in all three models, but it was not significant for male respondents, in contrast to observations made with drinker profile. Thus, it may be that job factors lead certain women to occasional events of binge drinking.

The final set of models considered drinking at work and within four hours of arriving at work. As with previous models, the ease with which an individual can access alcohol, has a significant association with whether or not s/he will drink at work or prior to arriving at work, regardless of gender. Among female respondents, gender composition was significant. However in one model, women in female-dominated occupations were more likely to have ever consumed alcohol at work, while the remaining models were in the hypothesized direction.

As with models related to drinker profile, JCCS was only significant among male respondents however, JCCS significantly decreased the odds of ever having consumed alcohol at work. This finding is in contrast to what was expected with such characteristics. Finally, perceived job stress was not a significant variable related to drinking.

Overall, the work environment of an employee is a key factor for determining drinking patterns in general. Whether or not alcohol is available on the work site, near the work site or colleagues drink socially after work, are related to the way an individual consumes alcohol. Also, an important predictor of alcohol consumption is JCCS,

although this variable was not as constant with its ability to predict drinking. Nonetheless, it emerged as a significant variable, and one that must not be disregarded.

The less influential predictors however, were consistently unreliable. Perceived job stress was not related to drinking in any of the models examined in this chapter. Thus, personal assessments of stress are inaccurate predictors of either male or female drinking. Although an irrelevant variable, but to a less extent than job stress, was gender composition of an occupation. Gender composition was rarely significant and was unexpectedly an inconsequential predictor. Finally, as with earlier findings, gender differences were noted where the models showed stronger predictive power for male as compared to female respondents.

As stated at the outset of this chapter, there is no published research that has taken into consideration the precise variables examined within this chapter. This is a new area of investigation and thus, requires further discussion and implications for findings. In addition, although it is somewhat problematic to link previous research and theory to the current results, comparisons can be made to a certain extent.

Undeniably, the importance of the work environment at predicting drinking cannot be overlooked. Many of the same patterns that emerged in earlier chapters also came about in this chapter, signifying the consistency and accuracy of the work environment and its association with drinking.

Likewise, the findings related to work environment specifically, are consistent with previous research showing that the availability of alcohol can, and has the capacity to be associated with an employee's drinking (Kjaerheim et al., 1995; Shore, 1990; Trice, 1992; Svare, Miller & Ames, 2004; Wilsnack & Wilsnack, 1992). Current results

support the fact that easy access to alcohol is positively correlated with frequent drinking, heavy drinking on a regular basis (i.e. two to three times per week), as well as drinking at work and prior to arriving at work. Thus, there is a level of occupational support for drinking embedded within the work environment that is related to how an employee drinks. Perhaps what is most interesting, is the finding that this association is irrespective of gender, although previous research indicated male-dominated occupations to have more opportunity to drink (Blum & Roman, 1997). Both men and women who have easy access to alcohol are more likely to fall into the aforementioned trends. Thus, a work environment in which drinking is permitted and/or where alcohol is easily accessible can compel individuals to drink, which is consistent with other results (Shore, 1990).

Thus, the social and physical availability of alcohol, as put forward by the workplace culture perspective, are two important determinants for the escalation of drinking into problem drinking. This idea is supported when examining heavy alcohol consumption. It was found that heavy drinking was a regular occurrence indicating problem drinking as defined by the low risk guidelines. The low risk guidelines specify women should consume no more than nine "standard" drinks per week; for men the maximum is fourteen[29]. Based on these guidelines, a small proportion of Alberta employees are problem drinkers and most importantly, the work environment is a determining factor. More specifically, it is the work environment that presents the accessibility of purchasing alcohol during the workday on site, or at lunch, as well as a social network with whom to drink (Ames & Janes, 1992; Trice & Sonnenstuhl, 1988).

[29] The Low-Risk Drinking Guidelines were developed by a team of medical and social researchers from the University of Toronto and the Centre for Addiction and Mental Health (CAMH), and have been endorsed by several organizations.

The findings from this and earlier chapters have reinforced the significance of the work environment, and have also supported previous research and theory.

Although it was expected that the gender composition of an occupation would be a significant predictor of drinking, the findings in this chapter reiterate those of Chapter 5. While gender composition emerged as somewhat more important of an indicator for drinking in earlier chapters, when considering all predictor variables together, there were rarely instances showing significance of this variable. Several studies have found those occupations that have been historically dominated by males to have higher alcohol consumption patterns than female-dominated positions (Cho, 2004; Kraft et al., 1993; Lisansky-Gomberg, 1994; Mandell et al., 1992; Parker & Harford, 1992; Shore & Pieri, 1992; Svare, Miller & Ames, 2004; Wilsnack & Wilsnack, 1995). Thus, in contrast to earlier research that supported premises indicating those in male-dominated occupations as being more likely to drink, the current results indicate no such trends. In addition, mix-gendered occupations had little correlation with drinking patterns of employees even though previous research indicated otherwise. Thus, inconsistent with other research (Blum & Roman, 1997; Hammer & Vaglum, 1989; Kraft et al., 1993), this study did not find mix-gendered occupations to have a significant relationship with increased alcohol consumption.

The current findings lend no support to the importance of those with whom (i.e., men or women) one works. Women in male-dominated positions are not, as hypothesized, abiding by informal norms and partaking in drinking. Women are not being "bullied" into drinking by male co-workers and a male standard. Moreover, men in

male-dominated occupations are also not being influenced by male norms to drink. It is thus possible, that a male workplace culture as defined within this thesis, does not exist.

Although the workplace may be an influential source for drinking, it appears that the gender composition of an occupation does not have the influence to affect the manner in which one drinks. Whether or not an individual works with majority males or females, is not a factor for determining the type of drinker one will be, or whether or not an individual will participate in heavy drinking. Instead, it seems there are other more important reasons explaining why one drinks or not. One such reason as already discussed, is the physical work environment. However, other factors not taken into consideration within this thesis are likely to be important influences (e.g., job alienation, supervisor presence, majority of peers from work, family background, etc.).

Yet one other important factor for predicting alcohol consumption that has been given attention in research as well as theory development is also related to the work environment. More specifically, certain job characteristics (e.g., monotony, repetitive tasks) have been found to contribute to an employee's increased drinking patterns. The previous chapter, which considered job stress, did not reveal any noteworthy results. The current chapter however, shows that JCCS is a strong predictor of male's drinker type but not females. Alternatively, JCCS was a better predictor of heavy drinking by women but not for men.

It has also been found that work can contribute to stress. Relationships have been found between problem drinking and repetitive tasks leading to boredom, lack of supportive networks and so forth (Ames & Janes, 1992; Trice, 1992; Williams, 2003). The results of this chapter lend some support to this and other findings associating stress

to the use of alcohol (Crum et al., 1995; Gianakos, 2002; Harris & Fennell, 1988; Roxborough, 1998; Seeman & Seeman, 1992).

Results from the current study show that JCCS was a consistent predictor of monthly heavy drinking among female employees, but not a predictor of male heavy drinking. The infrequent nature of heavy alcohol consumption among women may be due to the limited and appropriate coping choices women have which is consistent with what other research has also shown (Gianakos, 2002). Although women may be in occupations with several stress inducing job factors, they are possibly more likely to employ other coping strategies such as tobacco. This issue will be investigated in the proceeding chapter.

The present findings however, are inconsistent with other research indicating that males most often report alcohol use as a means of coping with stress (Crum et al., 1995; Gianakos, 2002). Although JCCS was a consistent predictor of drinker profiles indicating heavy-infrequent drinking by males, it did not predict heavy drinking (as measured by consuming six or more drinks on one occasion). In addition and in contrast to expectations, as JCCS increased, the odds of ever drinking at work decreased. Furthermore, when comparing the frequency of heavy alcohol consumption by women, and the drinker profile of men as predicted by JCCS, it appears that men *are* using alcohol more often to deal with stress related to workplace experiences and events, and it may not be all that different from the way in which women use alcohol.

Overall, as Sutherland and Cooper (1988) highlight in their perspective of workplace stress, there are various job conditions which act as potential psychosocial and occupational stress. Physical and task demands, the role of the individual within the

organization, as well as relationships with colleagues among others, can contribute to job stress collectively as well as individually. Stress is a learned rationale for drinking (Trice & Sonnenstuhl, 1990), however it remains to be fully determined whether it is in fact predominantly acquired in the context of work.

Conclusion

This chapter has considered the overall relation of the workplace culture, job stress and drinking patterns by a sample of Alberta employees. Relatively few studies have collectively considered the variables taken into account within this chapter, thereby making this section somewhat unique. Although several studies have examined the workplace culture and stress independently, research and theory development into the overall effects on drinking are sparse.

The findings from this chapter strongly support the importance of the work environment when predicting alcohol consumption. The ease at which employees can access alcohol has a significant association with the manner in which both male and female employees drink. The work environment strongly predicts both light and heavy-frequent drinking however, it was not a significant predictor of infrequent alcohol consumption, signifying that the ease and perhaps even the opportunity to drink results in more frequent drinking episodes. This notion is also supported by findings indicating the importance of the work environment at predicting both male and female alcohol consumption at work and prior to arriving at work. As indicated, these models were somewhat stronger for males than females, however nonetheless the importance of the work environment for both sexes cannot be overlooked.

Finally, the work environment was a clear predictor of heavy drinking among women whereas for men, although a significant variable, the association was not as clear-cut. It is also worth noting that the gender composition of an occupation remained to be a non-significant variable. The proportion of men in a given occupation has no bearing on drinking patterns.

Results from this chapter also emphasize the importance of JCCS. JCCS was a strong and consistent predictor of male's drinker profile for heavy-infrequent drinking, as well as the decreased odds of ever drinking at work. The latter finding may be due to certain job factors that do not allow for an employee to drink at work. For instance, a job involving repetitive tasks may be indicative of someone working an assembly line or some other occupation where alcohol cannot be consumed because of job duties. It should finally be noted that perceived job stress is a non-significant predictor of alcohol consumption for men and women. Not once was this variable shown to have any association with alcohol consumption.

Overall, the models evaluated within this chapter indicate the consistency and magnitude of the work environment and to a certain extent, JCCS at predicting drinking patterns. This chapter confirms the value of these variables in research and theory, and contributes to the field by further enhancing the empirical evidence presented by others. However, these findings also refute claims of the importance of the gender composition of an occupation, as well as one's personal assessment of stress. These variables have little or no correlation with drinking patterns, but this does not suggest that future research should disregard these variables altogether. Instead, future research should explore whether such findings will emerge in other samples.

CHAPTER 8: WORKPLACE CULTURE, JOB STRESS & OTHER SUBSTANCE USE: DATA ANALYSIS & DISCUSSION OF FINDINGS

When considering marijuana use, the ease at which male employees can access this substance is related to how often they consume it. More specifically, the work environment is associated with daily use of marijuana by males. Although this is not the substance of choice when coping with stress, tobacco does appear to be an option for many when faced with work-specific stress, especially for women. Gender composition of an occupation is correlated with both male and female tobacco use, particularly when examining moderate and heavy smokers. However as in previous chapters, this variable presents conflicting results and must be more closely examined.

When conducting research, one must always expect the unexpected. It was hypothesized, and on an intuitive level strongly believed, that the workplace culture and job stress would both have a strong impact on the manner in which an employee consumes alcohol. With the exception of the work environment and in some instances, job characteristics contributing to job stress, the remaining variables were not consistently significant predictors of drinking. However, it remains to be seen whether or not these variables are predictors of other substance use among employees[30].

As a result, it was determined to be important to evaluate the overall association between the workplace culture, job stress and other substance use (i.e., tobacco and marijuana). Initially this section was not planned for, but due to the lack of support observed for gender composition and perceived job stress in earlier chapters, it was determined that additional research in order to further investigate the workplace culture and job stress was needed.

[30] It is not the intent of this chapter to fully cover the realm of other substance use, but to explore the relations on a broader level as this is not the focus of this dissertation.

Review of Measures

Measures for the core variables are the same as in previous chapters, with the exception of those that are directly related to alcohol (i.e., work environment). A new scale was created for the work environment related to marijuana use. The following questions were asked about the respondent's work environment. "Street drugs are available near the workplace", "Street drugs are used in my workplace" and "Street drug use is a socially accepted activity among people that work here". A weighted index was constructed in order to measure the work environment of the respondent. Respondents received a score of "3" for each "almost always" response, "2" for "most of the time", "1" for "sometimes" and a "0" for "never". The score obtained for this index is treated as a semi-equal interval variable. The minimum score obtainable is "0", and the maximum is "9", reflecting the two extremes of this index. Since similar questions were not asked of those using tobacco, the work environment variable is not included for this group. Finally, gender composition is measured by the proportion of men based on 2002 Alberta labour force statistics, and is measured three different ways- by a 50/50 split; by three divisions representing 0-40% males, 41-59% males and 60-100% males; and finally by deciles (i.e. 0-10% males, 11-20% males and so forth).

As stated elsewhere, there are two measures for job stress. Perceived job stress is measured by asking, "how stressful do you consider your job?", which was recoded into those respondents who indicate job stress and those who do not. As discussed in Chapter 4, an index was created in order to measure job characteristics contributing to job stress which is based on five questions concerning the respondent's job duties. The score

obtained for this index is treated as a semi-equal interval variable. The minimum score obtainable is "0", and the maximum is "5", reflecting the two extremes of this index.

The dependent variable for marijuana use classifies an individual into those who use marijuana one to three times per month and are thus considered *monthly users, weekly users,* who use marijuana between one and five times a week, and *daily users,* who use more than once a day.

Among those respondents indicating they have smoked cigarettes within the previous twelve months, a profile was created to capture those who are *non-daily smokers,* those who indicated they had smoked within the past month, but do not consume cigarettes on a daily basis, *light smokers,* consume between one and ten cigarettes daily, *moderate smokers* consume between eleven and nineteen cigarettes daily, and *heavy smokers* consume twenty cigarettes or more per day.

Summary of Findings

Although an exploratory chapter, a number of notable findings were determined. The first is the finding that the *ease at which male employees can access marijuana is related to how often they use the drug.* More specifically, the work environment is a key predictor of daily marijuana use among male employees. Among female employees, there was no evidence of consistent predictors, although gender composition by deciles (i.e., 0-10%) initially appeared to be significant.

Gender composition is once again an inconsistent predictor of both marijuana and tobacco use. When examining cannabis use, female-dominated positions were found to be more characteristic of infrequent marijuana use. When considering gender

composition and smoking, contradictory results emerged. In one model, both men and women in female-dominated positions had higher odds of being heavy smokers. In another model, both men and women in predominantly male positions were found to smoke heavily.

It does appear that JCCS is a contributory factor for women's light smoking, as well as moderate smoking. Males do not use tobacco when experiencing stress and neither men or women smoke if they perceive to be under stress. *There were no significant results between stress and the use of marijuana for male or female employees.*

Descriptive Analysis

A minority of men and women who were sampled have used marijuana in the twelve months prior to the 2002 survey- 13% and 7% respectively. This is similar to findings from the 2005 Canadian Addiction Survey, as well as a 1997 study conducted in Australia. Based on the Canadian Addiction Survey, 10% of women and 18% of men reported past year cannabis use. Among women who reported marijuana use in the 2002 Alberta survey, the majority reported monthly use (70%), 16% report weekly use, and 14% report daily use. Just over half of the men (55%) who indicated marijuana use, reported using monthly, 25% report daily use, and 21% report weekly use.

When considering the work environment, a number of variables constitute this scale as discussed above. Men have a higher mean on this scale than women- 2.47 versus 1.87- indicating men have more factors that give them easy access to marijuana than women.

The majority of men (35%) and women (27%) report they have smoked or used tobacco in the month preceding the survey. Among those women who report having smoked, 15% are light smokers, 6% are moderate smokers, and 4% report smoking heavily. Among men, 14% report light smoking, 9% indicate heavy smoking habits, while 8% report moderate smoking. According to a 2002 report on smoking (Statistics Canada, 2002), prevalence of smoking significantly decreased in Alberta between 1994/1995 and 2001. In addition, Alberta was one of six provinces to have experienced the largest decline in the prevalence of smoking since 1991. Finally, significant decreases in smoking were noted for both genders across the seventeen-year time period that was examined (Ibid.). Thus, it appears that smoking as a whole has been on the decline.

Multinomial Logistic Regression Results

Multinomial logistic regression is used in order to assess the best predictors for the outcome variables. The reference category for all models when considering marijuana use is those respondents who use monthly; among tobacco smokers, the reference category is always the non-daily smoker. Detailed results are presented in tables with the appropriate odds ratios where ratios greater than 1 indicate a positive relationship, and odds ratios less than 1 indicate a negative relationship. Only significant associations are presented and discussed in this chapter.

Gender Composition of an Occupation & Marijuana Profile

As with previous chapters, gender composition was assessed using three different measures. However unlike previous chapters, gender composition in three categories and

by deciles was found to be significant, which are discussed below. Nevertheless, as with earlier chapters, these models have stronger predictive power for men than women, although the differences are not substantial.

Table 8-1: Logistic regression coefficients measuring the effect of gender composition of an occupation on marijuana use.

	Weekly User Exp (B)		*Daily User Exp (B)*	
	Female	*Male*	*Female*	*Male*
***Model 1*: Gender Composition in 3 Categories**				
Female-dominated				
Mix-gender		4.250*		5.440**
Age				**9.534****
Income				
Marital Status				
Ever Married				
Education				
Less than University				
Females- N= 57, R^2 = 0.073; Males- N= 88, R^2 = 0.108				
Females- N= 50, R^2 = 0.238; Males- N= 83, R^2 = 0.197				
***Model 2:* Gender Composition in Deciles**	1.340*			
Age				
Income				
Marital Status				
Ever Married				
Education				
Less than University				
Females- N= 57, R^2 = 0.090; Males- N= 88, R^2 = 0.032				
Females- N= 50, R^2 = 0.254; Males- N= 83, R^2 = 0.112				

Note: ** indicates significance at the .001 level; * indicates significance at the .05 level. Odds ratios reported in bold indicate results of main predictor variables when analysed with control variables. Odds ratios less than "1" indicate a negative association; greater than "1" indicates a positive relation.
- Reference category for gender composition is male-dominated; marital status- never married, education- one or more university degrees.

When examining gender composition in three categories (Model 1, Table 8-1), it was found that male employees working in mix gender occupations have greater odds than men in male-dominated occupations to be weekly marijuana users (325% increase) and daily users (444% increase), as compared to those men who use monthly. Upon entry of control variables, male daily use of marijuana remained although none of the socio-demographic variables were significant.

Gender composition in deciles (Model 2, Table 8-2), showed only one significant association, which emerged for female respondents. For every one unit increase in the proportion of men in a given occupation, the odds a women will be a weekly versus a monthly user, increases by 34%. However, this relationship did not hold when control variables were entered. In addition, not one of the socio-demographic variables emerged as significant.

Work Environment & Marijuana Profile

The next model (refer to Table 8-2) takes into account the work environment and its effect on the use of marijuana. It was found that male employees who have easy access to marijuana have an increased odds of 36% to use this drug on a daily basis as compared to those males who use monthly. This relationship held with control variables, showing a similar odds ratio of 34%. As with models presented so far, none of the socio-demographic variables were significant. In addition, the variance explained was greater for men than for women, however once again the differences were marginal.

Table 8-2: Logistic regression coefficients measuring the effect of work environment on marijuana use.

Model 3:	*Weekly User Exp (B)*		*Daily User Exp (B)*	
	Female	*Male*	*Female*	*Male*
Work Environment				1.358* **1.337***
Age				
Income				
Marital Status Ever Married				
Education Less than University				
Females- N= 47, R^2 = 0.078; Males- N= 71, R^2 = 0.117				
Females- N= 40, R^2 = 0.190; Males- N= 68, R^2 = 0.168				

Note: ** indicates significance at the .001 level; * indicates significance at the .05 level. Odds ratios reported in bold indicate results of main predictor variables when analysed with control variables. Odds ratios less than "1" indicate a negative association; greater than "1" indicates a positive relation.
- Reference category for marital status- never married, education- one or more university degrees.

Workplace Culture & Marijuana Profile

The following three sets of models (4-6) take into consideration the effect of both, the gender composition of an occupation and work environment, on marijuana profile (refer to Table 8-3). To begin, the following models have stronger predictive power for women than men. However, in the final model (6), there is no difference in the variance explained, indicating the predictors describe marijuana use the same for both men and women.

The first model analysed shows two significant relationships among male respondents. First, easy access to marijuana leads male employees to daily use of this drug. There is a 45% increased odds among males who have easy access to use daily versus monthly. In addition, it was found that males working with a majority of females have a decreased odds (81%) of using marijuana daily versus monthly, as compared to

men working in male-dominated positions. Both these relationships held with the introduction of control variables, however yet again, none of the controls were significant.

Similar results became apparent with the model considering gender composition in three categories. Once again males who have easy access to marijuana have a greater odds (39%) of using the drug daily versus monthly. In addition, males working in mix-gender occupations versus male-dominated positions, have greater odds (401%) to use marijuana daily versus monthly. Both of the aforementioned relationships held with controls, as well as a new association. It was found that males working in female-dominated positions compared to male-dominated jobs, to have an increased odds of 524% to use marijuana daily versus monthly. No significant findings were found for women.

When examining gender composition in deciles, it was found that for every one unit increase in the proportion of men for an occupation, increases the odds of being a weekly user by a factor of 1.4. In other words, there is a 41% increase in the odds of women being weekly marijuana users as the proportion of men increases within an occupation. Interestingly, among men it was found that as the proportion of males increases, the odds of being a daily marijuana user versus a monthly user decrease by 22%. Finally, the work environment was a significant predictor of male marijuana use on a daily basis. Easy access to marijuana increases the odds that a male employee will use this drug by 43% as compared to an employee who does not have such accessibility.

Table 8-3: Logistic regression coefficients measuring the effect of the workplace culture on marijuana use.

	Weekly User Exp (B)		*Daily User Exp (B)*	
	Female	*Male*	*Female*	*Male*
***Model 4:* Gender Composition in 2 Categories**				
Female-Dominated				0.189* **0.133****
Work Environment				1.450** **1.407***
Females- N= 47, R^2= 0.146; Males- N= 71, R^2= 0.195 *Females- N= 40, R^2 = 0.251; Males- N= 68, R^2 = 0.270*				
***Model 5:* Gender Composition in 3 Categories**				
Female-dominated				**6.239***
Mix-gender				5.005* **11.575****
Work Environment				1.388* **1.373***
Females- N= 47, R^2= 0.150; Males- N= 71, R^2= 0.199 *Females- N= 40, R^2 = 0.257; Males- N= 68, R^2 = 0.294*				
***Model 6:* Gender Composition in Deciles**	1.407*			0.780* **0.733***
Work Environment				1.428** **1.405***
Females- N= 47, R^2= 0.191; Males- N= 71, R^2= 0.189 *Females- N= 40, R^2 = 0.289; Males- N= 68, R^2 = 0.260*				

Note: ** indicates significance at the .001 level; * indicates significance at the .05 level. Odds ratios reported in bold indicate results of main predictor variables when analysed with control variables. Odds ratios less than "1" indicate a negative association; greater than "1" signifies a positive association.
-Reference category for gender composition is male-dominated; marital status- never married, education- one or more university degrees.

Both of the latter relationships held once control variables were entered, indicating the consistency of these findings. Once again however, none of the socio-demographic variables were significant.

Workplace Culture, Job Stress & Marijuana Profile[31]

When taking into consideration the overall relationship between the workplace culture, job stress, and marijuana use, a number of significant associations became clear (refer to Table 8-4). First, when examining gender composition in two categories it was found that men with easy access to marijuana have greater odds (49%) to use this drug on a daily basis versus monthly. In addition, men working in female-dominated occupations are less likely than men in male-dominated occupations to use marijuana daily versus monthly. Both these relationships persisted with control variables, even though none of the socio-demographic variables were significant.

Gender composition of an occupation in three categories showed once again, that the ease at which male employees can access drugs is correlated to their use of marijuana. Males who have easy access to marijuana have greater odds (42%) to use this drug daily versus monthly. No other significant findings emerged. However, with the entry of control variables, gender composition of an occupation developed into a significant variable. Males have an increased odds of daily marijuana use when working in both female-dominated (669%) and mix-gender (1334%) occupations, controlling for other variables in the model. Finally, when looking at the variance explained, there are minimal differences between male and female respondents. Thus it seems that the workplace culture and job stress equally explain marijuana use in men and women.

[31] Since no significant findings emerged for either of the stress variables and marijuana use, they are not discussed.

Table 8-4: Logistic regression coefficients measuring the effect of the workplace culture & job stress on marijuana use[32].

	Weekly User Exp (B)		*Daily User Exp (B)*	
	Female	*Male*	*Female*	*Male*
***Model 7:* Gender Composition in 2 Categories**				
Female-Dominated				0.181* **0.118****
Work Environment				1.489** **1.502***
Females- N= 47, R^2= 0.228; Males- N= 71, R^2= 0.227 *Females- N= 40, R^2 = 0.298; Males- N= 68, R^2 = 0.336*				
***Model 8:* Gender Composition in 3 Categories**				
Female-dominated				**7.687***
Mix-gender				**14.341****
Work Environment				1.422* **1.482***
Females- N= 47, R^2= 0..223; Males- N= 71, R^2= 0.223 *Females- N= 40, R^2 = 0.311; Males- N= 68, R^2 = 0.359*				
***Model 9:* Gender Composition in Deciles**	1.439*			**0.724***
Work Environment				1.468** **1.499****
Females- N= 41, R^2= 0.267; Males- N= 71, R^2= 0.217 *Females- N= 40, R^2 = 0.330; Males- N= 68, R^2 = 0.324*				

Note: ** indicates significance at the .001 level; * indicates significance at the .05 level. Odds ratios reported in bold indicate results of main predictor variables when analysed with control variables. Odds ratios less than "1" indicate a negative association; greater than "1" signifies a positive association.
- Reference category for gender composition is male-dominated; marital status- never married, education- one or more university degrees.

Finally when considering gender composition in deciles, with every one unit increase in the proportion of men, there is a 44% increase in the odds a woman will use marijuana weekly as compared to monthly. Among men, the work environment was a significant predictor of daily marijuana use, and this relationship persisted with control

[32] Variables that are not presented in this Table were not significant, and therefore are not represented.

variables. In addition with controls, the gender composition variable emerged as significant among men, while the initial relationship that was found for women disappeared.

Gender Composition of an Occupation & Smoker Profile

The following models (10-12) account for the factors predicting smoking. The reference group for all subsequent models is the non-daily smoker, which will be referred simply as non-smokers (refer to Table 8-5). As with models examining alcohol and marijuana use, the variance explained in the following models is stronger for men than women. The exception is when examining the R^2 for the models with the socio-demographic variables, which shows the variance explained is equal for male and female respondents.

When considering gender composition in two categories, it was found that among female employees working in female-dominated occupations, there is an increased odds of 114% to be a heavy smoker versus a non-smoker. This relationship persisted even with control variables. Among males in female-dominated as compared to male-dominated positions, there are greater odds they will be light smokers (80%), moderate smokers (173%), and heavy smokers (178%) versus non-smokers, which all but light smokers held once control variables were entered.

Table 8-5: Logistic regression coefficients measuring the effect of gender composition of an occupation on smoker profile.

	Light Smoker Exp (B)		*Moderate Smoker Exp (B)*		*Heavy Smoker Exp (B)*	
	Female	*Male*	*Female*	*Male*	*Female*	*Male*
***Model 10:* Gender Composition in 2 Categories**						
Female-dominated		1.802*		2.732** **2.430***	2.144* **2.277***	2.784** **2.353***
Age	0.762**					
Income	0.791**				0.646**	
Marital Status Ever Married						
Education Less than University	3.263**		6.189**			
Females- N= 839, R^2 = 0.006; Males- N= 637, R^2 = 0.032 *Females- N= 751, R^2 = 0.146; Males- N= 585, R^2 = 0.138*						
***Model 11:* Gender Composition in 3 Categories**						
Female-dominated						
Mix-gender				0.386*		0.135** **0.160***
Age	0.764**	0.646**				
Income	0.791**				0.648**	
Marital Status Ever Married			0.456*			
Education Less than University	3.212**	2.033*	6.247**	3.984**		3.592**
Females- N= 839, R^2 = 0.010; Males- N= 637, R^2 = 0.033 *Females- N= 751, R^2 = 0.152; Males- N= 585, R^2 = 0.142*						
***Model 12:* Gender Composition in Deciles**				1.206** **1.194***	1.170* **1.167***	1.238** **1.199***
Age	0.763**	0.648**				
Income	0.791**				0.653**	
Marital Status Ever Married						0.481*
Education Less than University	3.219**	2.015*	6.229**	3.416*		3.054*
Females- N= 839, R^2 = 0.008; Males- N= 637, R^2 = 0.035 *Females- N= 751, R^2 = 0.146; Males- N= 585, R^2 = 0.141*						

Note: ** indicates significance at the .001 level; * indicates significance at the .05 level.
Odds ratios reported in bold indicate results of main predictor variables when analysed with control variables. Odds ratios less than "1" indicate a negative association; greater than "1" indicates a positive relation.
- Reference category for gender composition is male-dominated; marital status- never married, education- one or more university degrees.

In addition, a number of control variables were significant. Among women, those who are younger, have more than one university degree and who have low incomes are less likely to be light smokers than non-smokers. Among female moderate smokers, those with less than university as compared to those with one or more university degrees, are also more likely to be light smokers than non-smokers. Finally, as income increases among women, they are less likely to be heavy smokers as compared to non-smokers. Among men, age and education were the two consistently significant control variables. Older men are less likely to be light smokers, and in addition those with less than university are more likely to be light, moderate, and heavy smokers as compared to non-smokers.

Initially, two significant associations appear when considering gender composition in three categories (Model 11). Males working in mix-gender occupations have lower odds of being moderate (61%) and heavy (87%) smokers as compared to non-smokers. When control variables were entered, only the relationship with heavy smoking remained. In addition, age and education were significant socio-demographic variables among males, as well as income and marital status among females. Among male and female employees, older respondents are less likely to be light smokers as compared to non-smokers. Among men, those with less than university are more likely to be light, moderate and heavy smokers as compared to non-smokers.

The final model considers gender composition by deciles. The results show that for every one unit increase in the proportion of men in an occupation, there is an increased odds of 17% that a woman will be a heavy smoker compared to a non-smoker. Similar findings emerged for male employees showing that for every unit increase in the

proportion of men, the odds increase that a male will be a moderate (21%) and heavy (24%) smoker compared to a non-smoker. Among both men and women, these relationships persist with the introduction of control variables. In addition, older women, and women with high incomes are less likely to be light smokers as compared to non-smokers. It was also found that women with less than university are more likely to be both light and moderate smokers. Finally, as income increases the odds a woman will be a heavy smoker decreases. Among men, older respondents are less likely to be light smokers, and those with less than university are more likely to be light than non-smokers. Yet again, those with less than university are more likely to be moderate and heavy smokers, and those men who have ever been married are less likely to smoke heavily.

Job Stress & Smoker Profile

The next set of models considers the effect of stress on smoking patterns. When analysing perceived job stress (refer to Table 8-6), only one significant association was found. Males who report job stress have lower odds (42%) as compared to those with no stress, of being light smokers versus non-smokers. However, this relationship disappeared once control variables were entered into the model. Furthermore, although the variance explained is somewhat stronger for male than female respondents, it is extremely small (0.008 and 0.004 respectively) and therefore minimally illustrates the use of tobacco due to stress.

A number of the socio-demographic variables were significant. Among both male and female respondents, older employees are less likely than younger ones, to be light smokers as compared to non-smokers. In addition, male and female employees with less

than university are more likely to be light and moderate smokers. Among women, those with higher incomes are less likely to be heavy smokers; among men, those with less than university are more likely than those with one or more university degrees to be heavy smokers as compared to non-smokers.

Table 8-6: Logistic regression coefficients measuring the effects of perceived job stress on smoker profile.

Model 13:	*Light Smoker Exp (B)*		*Moderate Smoker Exp (B)*		*Heavy Smoker Exp (B)*	
	Female	*Male*	*Female*	*Male*	*Female*	*Male*
Perceived Job Stress						
Job Stress		0.577*				
Age	0.755*	0.651**				
Income	0.774**				0.655**	
Marital Status						
Ever Married						
Education						
Less than University	3.277**	2.059**	6.362**	4.481**		4.231**
Females- N= 839, R^2 = 0.004; Males- N= 638, R^2 = 0.008						
Females- N= 754, R^2 = 0.147; Males- N= 586, R^2 = 0.122						

Note: ** indicates significance at the .001 level; * indicates significance at the .05 level. Odds ratios reported in bold indicate results of main predictor variables when analysed with control variables. Odds ratios less than "1" indicate a negative association; greater than "1" signifies a positive association.
- Reference category perceived job stress- no job stress; marital status- never married, education- one or more university degrees.

JCCS was significant for only female employees (refer to Table 8-7). As JCCS increases, the odds of being a light and moderate smoker increase (23% and 51% respectively). However, when taking into account control variables, the relationship between JCCS and moderate smokers remained while the association for light smokers disappeared. Older women, and those with higher incomes are less likely to be light smokers as compared to non-smokers. As always, respondents (male and female) with less than university are more likely to be light and moderate smokers, as well as heavy

smokers (males only). Once again, very little variance is explained by the predictor variable for both male and female respondents.

Table 8-7: Logistic regression coefficients measuring the effects of JCCS on smoker profile.

Model 14:	*Light Smoker Exp (B)*		*Moderate Smoker Exp (B)*		*Heavy Smoker Exp (B)*	
	Female	*Male*	*Female*	*Male*	*Female*	*Male*
JCCS	1.234**		1.512** **1.364****			
Age	0.777*	0.649**				
Income	0.790**				0.643**	
Marital Status Ever Married						
Education Less than University	3.113**	2.293**	5.561**	4.334**		3.967**
Females- N= 837, R^2 = 0.030; Males- N= 635, R^2 = 0.009 *Females- N= 750, R^2 = 0.150; Males- N= 584, R^2 = 0.124*						

Note: ** indicates significance at the .001 level; * indicates significance at the .05 level. Odds ratios reported in bold indicate results of main predictor variables when analysed with control variables. Odds ratios less than "1" indicate a negative association; greater than "1" signifies a positive association.
- Reference category for marital status- never married, education- one or more university degrees.

Model 15 (Table 8-8) considers both perceived job stress and JCCS on smoker profile. Similar to the previous model, JCCS was significant for female employees. As JCCS increases, the odds of being a light and moderate smoker increase as well (23% and 50% respectively). With the entry of control variables, only the relationship between JCCS and moderate smokers remained. Among male employees, those who report job stress have lower odds (46%) than those who do not report stress to be light smokers as compared to non-smokers. This relationship however did not hold once control variables were entered into the model. In addition, as with other models examining smoker profile, job stress is not an adequate predictor of smoking patterns. Very little difference is noted in the variance explained with the addition of a predictor for determining smoker profile.

As with previous models, men with less than university are more likely to be smokers than non-smokers. In addition, older respondents are less likely to be light smokers as compared to non-smokers. Among women, many of the same variables are significant. Older women and those with higher incomes are less likely to be light smokers, whereas those with less than university are more likely to be light smokers.

Table 8-8: Logistic regression coefficients measuring the effects of job stress and JCCS on smoker profile.

Model 15:	*Light Smoker Exp (B)*		*Moderate Smoker Exp (B)*		*Heavy Smoker Exp (B)*	
	Female	*Male*	*Female*	*Male*	*Female*	*Male*
Perceived Job Stress						
Job Stress		0.536*				
JCCS	1.229**		1.499** **1.336***			
Age	0.768*	0.652**				
Income	0.774**				0.653**	
Marital Status Ever Married						
Education Less than University	3.179**	2.206**	5.684**	4.337**		3.999**
Females- N= 837, R^2 = 0.034; Males- N= 635, R^2 = 0.019 *Females- N= 750, R^2 = 0.157; Males- N= 584, R^2 = 0.126*						

Note: ** indicates significance at the .001 level; * indicates significance at the .05 level. Odds ratios reported in bold indicate results of main predictor variables when analysed with control variables. Odds ratios less than "1" indicate a negative association; greater than "1" signifies a positive association.
- Reference category perceived job stress- no job stress; marital status- never married, education- one or more university degrees.

Workplace Culture, Job Stress & Smoker Profile

The final models to be examined take into account the overall relationship between the workplace culture, job stress, and smoker profile. When considering gender composition in two categories (Model 16), a number of significant findings are apparent (refer to Table 8-9), however once again the variance explained is quite small. Among female respondents, JCCS is a predictor of both light and moderate smoking. For every

one unit increase in JCCS, the odds a woman will be a light smoker increases by 23%, and increases by 50% when considering moderate smoking. However, only the latter association holds when control variables are entered. In addition, as with previous models examined the variables of age, education, and income are all significant. Older women and those with higher incomes are less likely to smoke. Women with less than university, on the other hand, are more likely to be smokers than women with one or more university degrees.

Table 8-9: Logistic regression coefficients measuring the effects of gender composition in 2 categories on smoker profile.

	Light Smoker Exp (B)		*Moderate Smoker Exp (B)*		*Heavy Smoker Exp (B)*	
	Female	*Male*	*Female*	*Male*	*Female*	*Male*
***Model 16:* Gender Composition in 2 Categories**						
Female-Dominated		1.736*		2.626* **2.398***	**2.297***	2.715** **2.331***
Perceived Job Stress						
Job Stress		0.540*				
JCCS	1.230**		1.501** **1.336***			
Age	0.767*	0.640**				
Income	0.775**				0.650**	
Marital Status Ever Married						
Education Less than University	3.229**	2.013*	5.673**	3.759*		3.430**
Females- N= 837; R^2 = 0.039; Males- N= 634; R^2 = 0.048 *Females- N= 750; R^2 = 0.164; Males- N= 583; R^2 = 0.144*						

Note: ** indicates significance at the .001 level; * indicates significance at the .05 level. Odds ratios reported in bold indicate results of main predictor variables when analysed with control variables. Odds ratios less than "1" indicate a negative association; greater than "1" signifies a positive association.
- Reference category for gender composition is male-dominated; perceived job stress- no job stress; marital status- never married, education- one or more university degrees.

Men working in female-dominated occupations have higher odds of being smokers than non-smokers. In fact, the odds of men being smokers who are employed in such positions increases for each smoker type. Thus, men in female-dominated positions have higher odds than men in male-dominated positions to be light (74%), moderate (163%), and heavy (172%) smokers as compared to non-smokers. The latter two associations held with the entry of control variables, however the relationship between gender composition and light smoking disappeared. At first, it was found that men reporting job stress had lower odds (46%) of being light smokers as compared to non-smokers. However, this relationship ceased to exist once control variables were entered. Finally as with earlier models, men with less than university are more likely to smoke than those with one or more university degrees. In addition, age was significant where older men are less likely to be light smokers than non-smokers.

Gender composition in three categories shows several of the same significant relationships (refer to Table 8-10), and once again the variance explained is very small. JCCS was significant for female employees who are light and moderate smokers. Thus, as JCCS increases so too do the odds of a woman being a light (23%) and moderate (51%) smoker. However when control variables were entered, the relationship between JCCS and light smoking disappeared. In addition, women with less than university are more likely to be light and moderate smokers as compared to non-smokers. Women with higher incomes are less likely to be light and heavy smokers. Finally, older women and women who have ever been married are less likely to be light and moderate smokers respectively.

Men who report job stress have lower odds than men who do not report such stress to be light smokers (46%) as compared to non-smokers. In addition, men working in female-dominated positions have lower odds than men working in male-dominated occupations to be heavy smokers (86%). This relationship persisted even when control variables were entered into the model. When considering socio-demographic variables for men, education was the only significant variable. Men with less than university are more likely to smoke than men with more than one university degree.

Table 8-10: Logistic regression coefficients measuring the effects of gender composition in 3 categories on smoker profile.

	Light Smoker Exp (B)		*Moderate Smoker Exp (B)*		*Heavy Smoker Exp (B)*	
	Female	*Male*	*Female*	*Male*	*Female*	*Male*
***Model 17:* Gender Composition in 3 Categories**						
Female-Dominated						0.138** **0.160****
Mix-Gender						
Perceived Job Stress						
Job Stress		0.538*				
JCCS	1.229**		1.512** **1.352***			
Age	0.769*					
Income	0.774**				0.654**	
Marital Status Ever Married			0.468*			
Education Less than University	3.168**	2.108*	5.607**	3.891**		3.505
Females- N= 837, R^2 = 0.044; Males- N= 634, R^2 = 0.050 *Females- N= 750, R^2 = 0.171; Males- N= 583, R^2 = 0.149*						

Note: ** indicates significance at the .001 level; * indicates significance at the .05 level. Odds ratios reported in bold indicate results of main predictor variables when analysed with control variables. Odds ratios less than "1" indicate a negative association; greater than "1" signifies a positive association.
- Reference category for gender composition is male-dominated; perceived job stress- no job stress; marital status- never married, education- one or more university degrees.

The final model (Model 18) shows that for every one unit increase in JCCS, the odds increase that a woman will be a light (23%) and moderate (50%) smoker (refer to Table 8-11). However when control variables were entered, the relationship between JCCS and light smoking disappeared. In addition it was found that for every one unit increase in the proportion of men in an occupation, the odds increase by 16% that a woman will be a heavy smoker as compared to a non-smoker, which held even with controls. Specifically examining the control variables, women with less than university are more likely to be light and moderate smokers as compared to non-smokers. Women with higher incomes are less likely to be light and heavy smokers as compared to non-smokers. Finally, older women are less likely to be light smokers.

As the proportion of males in an occupation increases, so too do the odds that a man will be a moderate (20%) and heavy (23%) smoker. Both these relationships hold with control variables. Male employees who report stress have lower odds (46%) of being a light smoker as compared to a non-smoker. This relationship however, disappears when control variables are taken into account. As with previous models, men with less than university are more likely than those with one or more university degrees to be light, moderate, and heavy smokers as compared to non-smokers. In addition, older males are less likely to be light smokers, and men who have ever been married are less likely to be heavy smokers as compared to non-smokers.

Table 8-11: Logistic regression coefficients measuring the effects of gender composition by deciles on smoker profile.

	Light Smoker Exp (B)		*Moderate Smoker Exp (B)*		*Heavy Smoker Exp (B)*	
	Female	*Male*	*Female*	*Male*	*Female*	*Male*
Model 18:						
Gender Composition in Deciles				1.197** **1.194***	1.163* **1.165***	1.234** **1.200****
Perceived Job Stress						
Job Stress		0.541*				
JCCS	1.228**		1.497** **1.333***			
Age	0.768*	0.649**				
Income	0.775**				0.658**	
Marital Status Ever Married						0.480*
Education Less than University	3.177**	2.096*	5.652**	3.372*		3.042*
Females- N= 837, R^2= 0.041; Males- N= 634, R^2= 0.051 *Females- N= 750, R^2 = 0.163; Males- N= 583, R^2 = 0.147*						

Note: ** indicates significance at the .001 level; * indicates significance at the .05 level. Odds ratios reported in bold indicate results of main predictor variables when analysed with control variables. Odds ratios less than "1" indicate a negative association; greater than "1" signifies a positive association.
- Reference category for gender composition is male-dominated; perceived job stress- no job stress; marital status- never married, education- one or more university degrees.

Discussion of Findings

This chapter evaluated the relationship between the workplace culture, job stress, marijuana and tobacco use. Although this was an unanticipated chapter, it is important to consider other substances that may be the result of a particular workplace culture, or even job stress. It seems however, that few researchers have also felt the obligation to evaluate the effects of the workplace upon other substance use.

Returning to the overall findings from the current chapter, when considering marijuana use, it appears that the work environment is a key predictor of daily marijuana use among male employees. Thus, the accessibility of marijuana plays an important role in the daily use of this drug by males. Among females, gender composition by deciles (i.e., 0-10%, 11-20%), appears to have some association with the weekly use of the drug, but this relationship did not hold with control variables.

Finally, there were no significant findings concerning stress and the use of marijuana. Neither female or male employees use this drug when feeling stressed. Based on results from this chapter, personal assessments of stress and job characteristics contributing to job stress do not lead employees to use marijuana.

What appears to be a more likely coping substance for some is smoking. Based on the current results, as job characteristics related to stress increase among female employees, they are at greater odds of being moderate smokers. To a certain extent, JCCS is also a contributory factor for women's light smoking, however this finding is not conclusive. Males do not appear to use tobacco when experiencing stress, however it does appear that men working in female-dominated occupations is associated with smoking.

When examining gender composition in two categories, both men and women have greater odds of being heavy smokers when working in female-dominated positions. In addition, men in such occupations are more likely than men in male-dominated occupations, to be moderate smokers.

Overall, when considering marijuana use, the ease at which male employees can access this substance is associated with how often they consume it. More specifically,

the work environment is related to the daily use of marijuana by males. Although this is not the substance of choice when coping with stress, tobacco does appear to be an option for many when faced with work-specific stress, especially for women. Gender composition of an occupation is associated with both male and female tobacco use, particularly when examining moderate and heavy smokers. However as in previous chapters, this variable presents conflicting results and must be more closely examined in future studies.

Stress in any form as measured in this chapter, is not associated with using cannabis. This is consistent with the few studies that have taken into account the use of cannabis for dealing with stress (Johnson & Raskin-White, 1995; Mensch & Kandel, 1988; Nowack & Pentkowski, 1994; Jex, et al., 1992). Johnson and Raskin-White (1995) found that changes in marijuana use among new entrants to the work force was related to *generalized* stress as opposed to work-specific stress. Thus, the use of marijuana for dealing with stress may be a possibility for more broad forms of stress, but not when specifically dealing with work-related stressors (e.g., JCCS) as examined throughout this dissertation. In fact, another study (Mensch & Kandel, 1988), found that none of the job characteristics examined, which included stressful work roles, had significant effects on marijuana use, on or off the job. The current results also showed no significant associations between personal assessment of stress and job characteristics, and the use of marijuana.

Stress is however associated with cigarette use, and more specifically women's cigarette use, which is in line with other research (Eysenck, 1991; Siqueira, et al., 2000). High stress levels have been associated with smoking initiation and also with continued

use (Siqueira, et al., 2000). When specifically focusing on job stress, there is some evidence that smoking is a result of such factors (Conway, et al., 1981; Mensch & Kandal, 1988). Job dimensions were found to be consistently related to smoking in a sample of labour force individuals (Mensch & Kandal, 1988). The current results also show that JCCS is a strong predictor of moderate smoking (11-19 cigarettes daily) for women, but not among male employees, which was also found in other research.

Although the work environment was only measured for marijuana use within this chapter, it was found to be an important predictor of daily use by males. It is impossible however, to compare this finding with other research since none has been conducted. What can be deduced from formulations and research on alcohol, is that the ease at which employees can access the substance is critical for determining consumption. When employees have the ability to access cannabis easily, as well as feel that the behaviour is socially acceptable by fellow co-workers, individuals are less inclined to feel ashamed and therefore, use the drug regularly, as found within this sample.

Based on the current findings, there is significant evidence to indicate that the work environment contributes to an employee's consumption of marijuana. Researchers have suggested that the workplace may be as great an influence as ethnicity and family background (Ames & Rebhun, 1996; Trice & Sonnenstuhl, 1990). Although these observations are specific to alcohol consumption, based on the results of this chapter, it is likely that the workplace is also influential when considering cannabis.

As with alcohol consumption, the availability of cannabis is more important for predicting men's daily use than work colleagues (i.e., majority male or majority female). The workplace culture perspective proposes that the combination of the physical and

social availability of alcohol, or for the purposes of this chapter, marijuana, are two important determinants of shaping the more frequent and problematic use of this drug. With the ease of accessing marijuana, as well as a group of work people who socially accept cannabis use (regardless of gender), it is more likely that drug use will occur.

Also quite interesting is the finding that in addition to the work environment being positively correlated with marijuana use, men employed in female-dominated positions are less likely to use the drug daily as compared to never. As mentioned earlier, gender composition of an occupation was not a reliable or consistent predictor, nonetheless, some attention should be given to this finding.

The workplace culture perspective assumes that when an occupation has historically been comprised of one gender, it is heavily influenced by it (Ames & Rebhun, 1996). Based on the results from the 2005 Canadian Addiction Survey, women are less likely than men to have reported past year cannabis use (39% versus 50%), which is sensible given the aforementioned significant results. The findings from this chapter are also consistent with those from an Australian study on marijuana patterns and attitudes.

The Australian study found that the occupational group least likely to report marijuana use is the clerical/sales (female-dominated), while the highest rates are found amongst the skilled/technical group (male-dominated)(Makkai & McAllister, 1997). In addition, this study showed that when taking into consideration the frequency of marijuana use, those in the transport/storage industry reported they used marijuana weekly or more often, while employees in the retail industry are the group least likely to report regular usage. Thus, similar to the current findings, female-dominated positions

are more characteristic of infrequent marijuana consumption, which is most likely due to the fact women as a whole are less likely to use the drug than men. In this sense, there is support for the notion that a female occupational subculture exists, which significantly hinders marijuana use by men.

Contradictory results emerged however, when considering gender composition and smoking. When examining the proportion of men in an occupation in two categories, results show that both men and women in female-dominated occupations are more likely to be heavy smokers. As previously indicated, research shows that smoking is a more common habit among women than men (Adrian & Kellner, 1996; Eysenck, 1991; Siqueira et al., 2000). Thus, as proposed by the workplace culture perspective, when one gender dominates a profession, it is influenced by it. In addition, other research has also shown that behaviour displayed by work colleagues was a significant predictor of anti-social behaviour by others (Robinson & O'Leary-Kelly, 1998), which may help to explain the use of tobacco. However, the additional and contradictory finding that as the proportion of men increases in an occupation, both men and women smoke heavily, complicates matters.

Occupations in construction and transportation equipment operating, have the highest proportion of smokers (50% and 46%), as well as the highest proportions of heavy smokers (17% and 20%). Thus, it is most likely that individuals in such male-dominated positions will be influenced to smoke. Moreover, construction is a trade where smoking is easily facilitated due to the fact it is mainly outdoors, and there are no restrictions as to where one can smoke. Due to the lack of research in this area, future research should pay particular attention to the effects of occupation on smoking patterns.

Conclusion

This chapter has considered the overall effect of the workplace culture and job stress on the use of marijuana and tobacco among a sample of Alberta labour force employees. This chapter is a rare contribution due to the lack of research in this area.

The current findings echo the importance of the work environment found in earlier chapters. It was found that with easier access to marijuana, as well as a level of social approval for using the drug, male employees have greater odds of using marijuana daily. Based on the current findings, there is significant evidence to indicate that the work environment provides an ideal opportunity for an employee to use marijuana. As a result, the work environment also provides an occasion for drug intervention and treatment.

Once again, gender composition was an inconsistent predictor of substance use. When examining cannabis use, female-dominated positions were found to be more characteristic of infrequent marijuana use. However, when considering gender composition and smoking, contradictory results emerged. In one model, both men and women in female-dominated positions had higher odds of being heavy smokers. In another model, both men and women in predominantly male positions were found to smoke heavily.

Although stress was not related to using cannabis in any way, stress was a significant predictor of women's cigarette use. More specifically, JCCS was a strong predictor of moderate (11-19 cigarettes daily), smoking among women, but not for men. In addition, perceived job stress was not significant for either women or men.

The amount of research on the workplace culture, job stress and other substance use is very limited. Based on the initial findings from this chapter, it would be worthwhile to further investigate the current variables in-depth and with other labour force samples.

Chapter 9: Conclusion

Every clarification breeds new questions.
~Arthur Bloch

This dissertation sought to understand the complex relationships of the workplace culture, job stress, and drinking patterns. Limited research exists on this topic, especially when considering the use of alcohol by the workforce both in general (i.e., outside of work) and more specifically during the workday. The current project illustrates the importance of the workplace influence upon drinking. More specifically, this study demonstrates that the best predictors of alcohol consumption are the work environment (i.e., the physical and social availability of alcohol) and job characteristics contributing to job stress. Among the socio-demographic variables taken into account, age and education were most often significant when considering drinker profile and heavy drinking, while marital status and income were found more often for drinking at work and prior to arriving at work.

This chapter will begin with a review of the issues around the workplace, job stress, and alcohol consumption. It will include a summary of the literature and theory utilized in this dissertation, as well as a synopsis of the key findings. In the second half, data limitations, research implications, and future directions will be discussed.

Alcohol consumption, alcohol problems and dependence are serious issues in terms of health, work productivity, and interpersonal relationships. Alcohol is the most widely used and misused substance in the general population, and in the workforce (Frone, 2006), which results in significant social and economic costs associated with lowered productivity, increased absenteeism, and impaired job performance (Roman,

1990). Nation-wide in Canada, it has been estimated that alcohol accounted for $14.6 billion in costs, including $7.1 billion due to lost productivity (Rehm et al., 2006). The overall social cost of substance abuse in Alberta in 2002 was estimated to be $4.4 billion, and the estimated cost due to alcohol was $1.6 billion (Ibid.). These figures represent overall increases in the total cost of substance use since 1992 when it was estimated at $1.6 billion. In the United States, workplace alcohol use and impairment directly affects approximately 15% of the US workforce, or 19.2 million workers (Frone, 2006). The use of alcohol by employees whether at work, or outside of work is clearly an important issue.

The use of alcohol in the workforce raises important considerations for social policy since alcohol has the potential to destabilize employee health, productivity, and safety. Furthermore, alcohol use during the workday and prior to arriving at work is a risk factor for injuries and accidents at work (Frone, 2004). From a policy standpoint, it is important to know how people drink (i.e., with whom), and what makes up their drinking style (i.e., levels of use). Since different groups of people consume alcohol in very different ways, it is necessary to consider specific groups such as employed individuals in order to achieve a greater level of understanding of the motivating factors leading to the use of alcohol. Perhaps an even more important consequence of examining alcohol use by the workforce is for the purposes of prevention. Effective prevention requires an understanding of how people actually drink. To comprehend the factors that place certain individuals at greater risk, or to understand their particular drinking pattern requires relevant research. Given that the majority of adults who are at risk for alcohol problems are employed (Roman & Blum, 2002), it is even further clarified that research

on alcohol and the workplace is essential. Nonetheless, research in this area and more specifically, research in a Canadian context is quite limited, thus making the current project an important contribution to the alcohol field. Moreover, within the discipline of Sociology, the study of drinking, alcohol abuse, and alcoholism is one of the least developed specialty areas (Roman, 1982).

Chapter 2 relayed the limited research that has focused on the workplace culture and its impact on an employee's drinking patterns. Although many studies have established a relationship between employees working in male-dominated occupations and a higher prevalence of drinking (Blum & Roman, 1997; Cho, 2004; Kraft et al., 1993; Lisansky-Gomberg, 1994; Svare, Miller & Ames, 2004; Wilsnack & Wilsnack, 1995; Wilsnack et al., 1994), there is less awareness about women who are working in male-dominated occupations, and the effects on their alcohol consumption. In addition, the literature considering men in female-dominated occupations is essentially non-existent, which was an issue examined throughout the current thesis.

Another important finding that emerged in the literature demonstrated the strong influence of the work environment on an employee's drinking patterns (Greenburg & Grunberg, 2000; Kjaerheim, et al., 1995; Shore, 1990; Trice, 1992; Trice & Sonnenstuhl, 1988; Svare, Miller & Ames, 2004; Wilsnack & Wilsnack, 1992). Availability of alcohol during conferences, business lunches, and office parties have been found to support heavy drinking among employed individuals.

Some studies have shown a relationship between high stress and increased alcohol use (Crum et al., 1995; Gianakos, 2002; Harris & Fennell, 1988; Roxborough, 1998; Seeman & Seeman, 1992), whereas others have reported no association between the two

(Brady & Sonne, 1999; Crum et al., 1995; Greenberg & Grunberg, 2000; Romelsjo et al., 1992; Shore, 1990; Vasse et al., 1998). Research indicates there are several potential sources of stress stemming from the workplace, including physical demands and work overloads, rotating shift work, role conflicts, monotony, and so forth (Trice, 1992; Williams, 2003). Moreover, if an overlap between work and leisure schedules occurs, the likelihood that an employee will either be at work or come to work in an impaired condition increases (Ames & Janes, 1992).

The two perspectives employed within this thesis- the workplace culture perspective and the work stress theory- stem from much of the literature examined. Overall, these two perspectives suggest that alcohol consumption and abuse are related to the type of workplace culture, as well as stress that occurs within the work environment.

The first perspective, the workplace culture perspective, emphasizes the workplace as a culture that socializes its members to drink. A key component of this perspective assumes that a subculture has its own norms regarding appropriate behaviour, which may be reflected by the availability or unavailability of alcohol on the worksite. According to the workplace culture perspective, both these components are important for shaping problem drinking in individuals.

The second perspective, the work stress perspective, relates the stress experienced at work as a reason for drinking. This perspective views and addresses a variety of conditions as causes of psychological and physiological distress, which employees seek to ease through drinking (Trice & Sonnenstuhl, 1988). The work stress perspective also focuses upon workplace experiences and events that become translated into life strains. This perspective considers such sources of stress as physical properties of the working

environment, changes in job content, machine pacing, monotony, lack of decision-making and the like, which can contribute to increased alcohol consumption (Ames & Janes, 1992; Trice & Sonnenstuhl, 1990).

The Alberta Alcohol and Drug Abuse Commission collected the 2002 data analyzed within this dissertation through their survey on substance use and gambling in the Alberta workplace. A total of 1,890 respondents, representing 67% of all survey participants, answered questions regarding their pattern of alcohol use in the twelve months preceding the survey. Using multinomial logistic regression to analyze results, the best predictors for the outcome variables were determined.

The current research clearly demonstrates that the ease at which an employee can access alcohol has the greatest relation to the manner in which s/he drinks. It was an unfailing predictor for both men and women, although the predictive power of the models was generally stronger for men than women, indicating that the predictor variables explain more about drinking in men than they do for women. Nonetheless, the findings related to the work environment support previous research and theory. In particular, the current findings support the workplace culture perspective, which assumes that a subculture has its own norms regarding appropriate behaviour, which may be reflected by the availability or unavailability of alcohol on the worksite. Both the physical and social availability of alcohol are two important determinants for shaping the drinking patterns of an employee. The findings strongly suggest that the work environment is a fundamental factor associated with one's drinking patterns.

Previous research, as well as the current findings reveal that when these is easy access to alcohol during the workday, as well as a group of individuals with whom to

drink, it is more likely that employees will engage in some form of drinking themselves (Ames & Janes, 1992; Frone, 2006; Kjaerheim, et al., 1995; Shore, 1990; Macdonald, Wells & Wild, 1999). As other researchers have proposed (Ames & Rebhun, 1996; Trice & Sonnenstuhl, 1990), the workplace is as great an influence on individual drinking patterns as ethnicity and family background, especially when alcohol is readily available. Once again, the current findings support such an assertion given the significant results obtained when examining the work environment.

As already indicated, previous research has demonstrated an association between stress and alcohol use (Crum et al., 1995; Gianakos, 2002; Roxborough, 1998; Seeman & Seeman, 1992). Specifically, the physical properties of the work environment such as monotony, shift-work, and boredom among others, can contribute to feelings of stress (Trice & Sonnenstuhl, 1990). These factors, although not as reliable at predicting increased alcohol consumption as the work environment, provided some support for the aforementioned hypotheses and perspectives. These findings emphasize the importance of job characteristics as predictors for drinking- as the number of these factors increase, the probability of increased alcohol consumption rises, especially for men. As demonstrated, most of the models showed stronger predictive ability among male respondents. There were instances when the models showed somewhat stronger predictive power for women, specifically for JCCS and drinking within four hours of arriving at work. Nevertheless, the work stress perspective views and addresses a variety of conditions as causes of psychological and physiological distress, which some employees seek to ease through drinking (Trice & Sonnenstuhl, 1988). This formulation

facilitated the understanding of why some people use alcohol to cope with work-related stress and furthermore, was supported by the current findings.

The results from this dissertation do not support earlier research indicating members of male-dominated occupations have increased alcohol consumption than those in female-dominated occupations, thereby increasing overall alcohol consumption (Blum & Roman, 1997; Cho, 2004; Kraft et al., 1993; Lisansky-Gomberg, 1994; Svare, Miller & Ames, 2004; Wilsnack & Wilsnack, 1995; Wilsnack et al., 1994). In fact, regardless of the way gender composition of an occupation was operationalized in the current thesis, few significant relationships emerged with drinking patterns.

Measurement error was explained as being the reason for the lack of effect on drinking in one study (Lennon, 1987), because the categories were deemed too gross. However, in the current study the lack of association is most likely not due to measurement, since this variable was measured in three different ways. It may be that a level of tolerance for drinking by the workplace culture does not exist. Specifically, unlike observations in other samples, in the current sample, the proportion of men in an occupation do not have the same type of influence on women. That is, men are not influencing women to consume alcohol. A male drinking subculture as defined throughout this thesis may not exist, which was also found in at least one other study. Lennon (1987) did not support the finding that women in predominantly male jobs have similar drinking patterns as males. Future research should examine this point more closely in order to determine if changes are indeed taking place within the workplace.

The current results also show no significant relationships between perceived job stress and alcohol use. The personal assessments of stress on a job do not directly result

in increased self-reported alcohol use or alcohol problems, which has also been found elsewhere (Grunenberg, et al., 1999). As discussed in Chapter 6, this finding may be due to the employee's use of active coping styles (i.e., thinking through problems and taking action with the goal of solving them). Thus, those who experience job stress may show less risk for heavy alcohol use if active strategies are part of their coping style (Hussong, 2003). The work stress perspective also puts forward this viewpoint by indicating individuals make a choice for a coping strategy and tactics for coping, which may not necessarily involve alcohol consumption (Zaccaro & Riley, 1987). This suggestion should be further investigated so as to explore the other forms of coping when dealing with job stress.

Although gender is an important concept in many sociological studies, gender as a theme in organization or workplace studies is still quite marginal (Miller, 2002), despite the findings that organizational cultures are strongly gendered (Bhattacharya, 2002; van Vianen & Fischer, 2002). Furthermore, research has the tendency to neglect women as a valid subject of study. Accordingly, gender was deemed an important variable throughout this dissertation and as a result, findings were obtained separately for men and women. This allowed the researcher to highlight differences among each group individually, as well as make comparisons between men and women overall.

Overall, differences were noted between male and female employees however, there were also predictors (i.e., independent variables) that estimated similar results. Among men and women, there were limited differences in the way in which the work environment predicted frequent drinking, heavy drinking, as well as drinking at work and within four hours of arriving at work. In other words, the work environment was a strong

predictor of alcohol consumption for both male and female employees. As previously noted however, when examining work environment and drinker profile, the model for women showed slightly stronger predictive power than for men, however when examining drinking at work and drinking prior to work, the opposite was found. It appears that the work environment has better capability for predicting the type of drinker a woman is, although the variance explained was small. Nonetheless, the work environment is an important variable when estimating drinking patterns.

When considering the gender composition of an occupation, once again gender differences were observed. In this instance, gender composition predicted heavy drinking for men but not women; subsequently, the predictive power was stronger for men than women. Specifically, it was shown that men in female-dominated occupations had greater odds of being heavy drinkers, as measured by drinker profile and heavy alcohol consumption. This finding warrants further attention in future research.

Regarding stress predictors, a number of additional differences were found between men and women, and once again the variance explained differed however quite subtly. On the whole, when stress was significant, it appeared for male employees but not female. This finding suggests that men are coping with stress through the use of alcohol more so than women, which has also been shown in other studies (Gianakos, 2002). However, JCCS showed slightly stronger predictive power for women when considering consuming alcohol within four hours of arriving at work. This may be due to the type of work (e.g., shift-work) with which women are involved. In fact, in 2000-2001 just over one-quarter (26%) of employed women were involved with shift-work in Canada (Statistics Canada, 2002). This finding is lower than the results from the current

sample, which shows that 30% of women were involved in some form of non-standard schedule. These results reiterate the importance of examining common job characteristics for women, which are differentially impacting drinking patterns.

Finally, this thesis examined the use of other substances (i.e., marijuana and tobacco) in order to understand if any of the previously examined predictors could also predict other substance use. In fact, work environment was once again a significant predictor of overall marijuana use by employees. More specifically, it was shown that the work environment is associated with the daily use of marijuana by males. However, marijuana use is not an outcome of individuals who experience stress. Instead it appears that tobacco is an alternative method, especially among women.

Data Limitations

This study is a secondary analysis of survey data. There are many advantages to this type of research including the fact that it is inexpensive, the gathering of data is timely, and the information is collected from a large group of people thus making findings generalizable to that population. However, there are also several limitations to secondary analysis.

Although secondary data analyses may use data for a purpose other than that for which the original data collection was designed, there are some issues that arise with this point. For instance, specific items or factors of interest to the researcher may have not been assessed within the survey. Within this particular survey, the vast majority of questions consisted of those the researcher would have asked. Additional questions on job stress would have helped assess whether respondents who indicated they were under

stress actually believed this to be a harmful factor in their lives. However, this is a point that was only raised in hindsight given the results that emerged, and most likely would have been overlooked during the preparation of survey questions.

Another issue is regarding the concentration of survey questions. A further concern when using secondary data is that items are collected with less depth than would be preferred by those conducting secondary analyses. Since this survey is intended to be an examination of *substance use* in the workplace, alcohol is not the primary focus point. As a result, the division of the sample was such that half (1,890) answered questions related to tobacco and alcohol, while the remaining half (1,891) responded to questions concerning illicit drugs and medications. Nonetheless, large portions of individuals were surveyed, which is far more than what the researcher would have reached. Thus, although alcohol per se was not the primary motivation behind this questionnaire, it captured the essential questions on alcohol consumption, including those on alcohol use during the workday. In addition, the survey focused on the workplace, a central component of this dissertation, and asked the fundamental questions about job factors of all respondents who participated in the survey.

An additional issue with survey data in general has to do with self-report data. It is a well-known fact that when asked questions of a sensitive nature, individuals have the tendency to intentionally underestimate their responses (i.e., indicate they have consumed less alcohol when they have in fact consumed more). Thus, there is the issue of inaccurate reporting, which can lead to imprecise findings. Inaccurate, or intentionally underestimating responses stems from a number of reasons, including concern at being identified, of being judged, or being embarrassed. Self-report data is especially

vulnerable to respondent's concerns about presenting an appropriate self-image to others, as well as the respondent, particularly when the behaviour has the potential to provoke social disapproval (Hessing et al., 1988; van der Heijden et al., 2000). However, this is an issue that is related to almost all forms of data collection and is not specific to using secondary data.

Implications of the Current Findings

Thus far, the present findings have been explained within the context of previous research as well as theory. What follows is a discussion of the implications of these findings, followed by recommendations for future research.

There is considerable support showing that the work environment, including specific job factors, is associated with alcohol consumption. This suggests that the workplace, as well as organizations as a whole, have a great persuasion on the drinking patterns of its employees. More specifically, the current project provides substantial evidence to support the notion that the work environment is key for developing particular forms of alcohol-related behaviour such as drinking at work, as well as general alcohol consumption. Given these findings, employers should not police their employees, but in order to maintain a healthy and safe workplace, they have a responsibility to ensure an alcohol-free work environment. This study suggests that organizations need to be aware, and to a certain extent, concerned about the potential use of alcohol, as well as marijuana not only within the workplace, but outside it as well.

Furthermore, as shown by a 1996 legal case in British Columbia involving Nike, employers have a legal responsibility to their employees, especially when alcohol is involved. The law requires an employer to take reasonable care for the safety of its

employees, which requires employers to avoid introducing conditions into the workplace which could reasonably put them at risk. The availability of alcohol during the workday is one such risk factor. The outcome of this case resulted in the burden of duty on the employer to monitor consumption of alcohol by an employee. Since it has been shown that the work environment is key in developing certain alcohol-specific behaviours, this may have an impact on future legal rulings that involve employees who leave the workplace intoxicated. As a result, it is important that employers are aware of such factors so that they may be proactive with regard to establishing rules and policies within the workplace and beyond (i.e., lunches, conferences, and workshops taking place during the day).

When an employee arrives at work impaired, or becomes impaired, whether by alcohol or other drugs, there can be serious consequences. One major consequence is workplace injury. Use and/or abuse of any substance can affect a worker's judgment and alertness, which in turn can result in serious injury. Although this is more so true for those occupations involving heavy machinery and the like, it can also affect those in other occupations. In fact, in the United States, 40% of industrial fatalities and 47% of industrial injuries can be linked to alcohol consumption and alcoholism (Bernstein & Mahoney, 1989).

The abuse of alcohol can also lead to lateness due to hangovers, increased absenteeism, impaired decision-making, decreased efficiency and productivity, as well as other diminished task functions, which affect all levels of employees. In 2000, in the United States, hangovers resulted in $148 billion in lost wages. A substantial proportion of the costs related to alcohol-related illnesses in Alberta were due to the indirect cost of

workplace productivity losses. The $855 million total includes costs associated with short-term and long-term disability and premature death. In addition to productivity losses, alcohol-related illnesses cost $407 million for direct health care services (Rehm, et al., 2006).

Given the findings regarding the importance of the work environment, it is clear that effective prevention efforts should focus on the workplace. The workplace holds great potential as a realm for alcohol-problem prevention, especially since it has been shown that the majority of adults who are at risk for alcohol problems are employed (Roman & Blum, 2002). Moreover, full-time employees spend much of their time at work, thereby increasing the possibility of exposure to preventative messages or programs. In fact, the province of Alberta has recently proposed a strategy for increasing public education on the hazards of alcohol over-consumption. The findings from this thesis suggest that the Alberta government should also expand such strategies and focus on the workplace as an arena for promoting such messages.

Educating employees about the consequences of alcohol use will raise awareness and share knowledge that will enable them to make healthy and informed choices about their drinking, as well as help those who choose to drink avoid patterns that are associated with health and social harm to themselves and others (ICAP, 2006). Finally, there is evidence to indicate that drug-free workplace interventions are associated with significant decreases in injury rates, as well as a reduction in the incidence rate of more serious injuries (Wickizer, et al., 2004), thus indicating the kind of impact interventions can have on the workplace.

Related to the above findings, is the substantiation of the importance of the physical work environment (i.e., job characteristics contributing to job stress). It is recognized that certain occupations carry a degree of boredom, shift-work, etc, and that these elements cannot be eliminated from a job. Nonetheless, organizations at the very least should be aware that these factors do have the potential to affect alcohol use and mis-use and must be willing to take action. Furthermore, research indicates that positive health perceptions tend to be less frequent among employees facing stress due to such physical working conditions. The physical work environment has been shown to exert a modest negative influence on employees' perceptions of their current health through reductions in their sense of mastery and control over their work (Health Canada, 1998).

In order to improve the physical work environment, employers should involve employees in identifying concerns related to the physical work environment and in creating practical solutions that address the issues. In addition, employees should be consulted on issues related to job redesign to facilitate increased control over their jobs. Such approaches within the workplace will help employees increase feelings of control and provide a sense of value, which in turn may increase overall health, thereby reducing the use of alcohol to cope with job stress.

Established workplace programs such as employee assistance programs (EAP), are designed to provide employees with access to qualified counseling professionals. EAPs are a form of preventative programming that organizations can use to deal with potential and actual issues. Since this type of service exists, organizations should take advantage of it and convey the message about sources of stress, and the appropriate ways

of coping. Such programs have been shown to have a positive impact on reducing stress and should be a part of every workplace organization.

Substance use policy also requires a focus on changing workplace norms and interpersonal factors, as much as on changing individual behaviour. For those organizations that have not yet contemplated policy, the findings from this research should be the catalyst in the thinking process. This research will assist management to formulate policy and support systems to address the use and abuse of alcohol. The current project has identified some of the important workplace factors that contribute to alcohol problems, which can be used by organizations to strengthen policies they have in place, or those that are just being put together.

Future Directions

There are a number of areas requiring further research. More specifically, the relationship between the proportion of men in an occupation, and the impact on women's and men's drinking requires further attention. This thesis failed to provide significant support for this association, as other researchers in the past have. Thus, it is recommended that the gender breakdown of occupations be more closely monitored. Future research should identify specific gender dominated occupations (e.g., occupations in hospitality, construction, technical), to determine if there are increased rates of drinking. This relationship should also be explored for researchers in the field of tobacco, as the results of this thesis did not provide support for the notion that gender composition is related to smoking patterns.

Forthcoming research should consider co-worker alcohol use as it has been more strongly related with job stress than the effects of isolated alcohol use (Roman & Blum, 2002). Other research has shown that substance users both at and away from work were best predicted by a combination of variables from personal and job domains (Lehman, et al., 1995). Thus, future research should also consider both alcohol consumption by co-workers and spouses/partners as factors for understanding the reasons for alcohol use.

Coupled with the above recommendation, is the issue of measurement related to perceived job stress. Future research should consider other ways of measuring job stress- are there valid scales that can be used? Sociologists should not only search within their own discipline, but also consider others such as psychology. If such scales are not available, what better ways are there to inquire about personal assessments of job stress?

Thought should also be given to the direction of the relationships explored. Does stress lead to increased alcohol consumption, or does increased alcohol consumption lead to feelings of stress? Reminiscent of the chicken and the egg dilemma, this may be a question that requires longitudinal data in order to be fully understood.

Also for future consideration is the potential circumstances under which job characteristics contributing to job stress may influence alcohol consumption. This thesis examined the influence on alcohol use, but did not take into account other conditions. Most importantly, this thesis did not consider job characteristics that are typical of women's jobs, which may differentially impact alcohol consumption. This is an area of research that is in need of attention. Since it was found that JCCS is related to male drinking patterns, it may be that job characteristics associated with female work will also result in changing alcohol patterns. It is recommended that future research pay careful

attention to the characteristics of women's employment in order to determine if similar patterns, as those observed of men, will appear.

Most importantly, it is recommended and even urged, that gender play a role in any forthcoming research in order to feed into new theory and research. Specifically, future research must explore new models for employed women, as it has been shown that the current ones do not provide adequate information on female patterns of alcohol consumption. As discussed, much of what is "knowledge" in the field of alcohol is based on studies of male subjects, which in turn generates theory that is used to conduct further research. Despite evidence indicating the need for gender appropriate models, which includes the improvement of models for men, and altogether new models for women, there is the persistence to adapt male-based models both theoretically and practically. Such models are used to account for the experiences of women, which are not always applicable. In fact, if future research demonstrates continued low rates of variance for employed men in similar circumstances as those examined, it may be necessary to revisit established theories in order to revise and make them more suitable.

Final Thoughts

This project is being completed at a time when substance use and abuse is finally being accepted as a serious problem within our society. The Alberta government is considering not only raising the legal drinking age, but also legislating against happy hours, which given the current findings, could have a huge impact on alcohol consumption. On the one hand, drinking rates may decrease since there could be obstacles with going out after work, but as shown in this thesis, drinking during the workday is not an entire anomaly and may increase if employees perceive the inability to

drink and "celebrate" at the end of the workday. As a result, the findings from this thesis should be given careful attention prior to implementing legislation that may do more harm than good.

In addition, the Canadian Centre on Substance Abuse (CCSA) recently released a study on the costs of substance abuse, calling for mobilization of support by agencies for substance abuse prevention programs (Rehm, et al., 2006). Furthermore, Health Canada is currently working on an alcohol policy framework. These agencies recognize that although alcohol is a legal substance, its mis-use has over time generated concern not only by the Canadian federal government, but by Canadian society as well. Such concerns have sparked recent research as the one by the CCSA. However, prior to the creation of any program, it is critical to have the appropriate answers to many of the questions that will undoubtedly come to mind.

It is anticipated that at least some of these answers can be found within the preceding pages. However, it is also critical that future surveys at both the provincial and federal levels consider these findings. Currently, AADAC is the only agency in Canada to collect alcohol and other substance use information from employees who are in the workforce. Agencies such as the CCSA, Health Canada, the Centre for Addiction and Mental Health, as well as others should also consider implementing questions such as those in the AADAC survey in order to fully understand what compels individuals to drink.

Appendix A-

Listing and Construction of Variables

Workplace Culture

1. Gender Composition of an Occupation

What is your main or primary occupation?

- 2001 labour force data for Alberta was used to reflect the appropriate gender composition of each occupation based on the proportion of men
- three variables were created based on the gender composition of an occupation reflecting: (1) a cut-off of 50% to determine male and female-dominated occupations; (2) a cut off where 0-40% males, will be referred to as female-dominated occupations, occupations with 60-100% males will be referred to as male-dominated occupations, and finally, occupations that consist of 41-59% males will be referred to as occupations with a gender mix; and (3) a cut off by deciles (0-10%, 11-20%, 21-30%, etc.)

2. Work Environment

On a 4-point scale, with 1 being Never, 2 Sometimes, 3 Most of the time and 4 being Almost always, please tell me how often each of the following occur in your workplace:

	Never	Sometimes	Most of the time	Almost always	Don't know/ No response
Alcohol is permitted on the premises at work					
Alcohol is available near the workplace					
People who work here frequently go for drinks after work together					

- A weighted index was constructed where respondents received a score of "3" for each "almost always" response, "2" for "most of the time", "1" for "sometimes", and "0" for "never"

Job Stress

1. Perceived Job Stress

How stressful do you consider your job?
1. Not at all stressful
2. Somewhat stressful
3. Extremely stressful
8. Don't Know/No Response

- Perceived job stress was recoded into those respondents who indicated job stress, and those who did not

2. **Job Characteristics Contributing to Job Stress**

Does your work involve any of the following characteristics?

	Yes	No	Don't know/ No response
Boredom?			
Repetitive Tasks?			
On-call work?			
Working shift-work?			
Working long hours, including overtime			

- An index was created where respondents received a score of "1" for every "yes" answer, and a score of "0" for every "no" response

Drinking Patterns

1. **Drinker Profile**

How often do you have a drink containing alcohol?
1. Never ***[GO TO QC6]***
2. Monthly or less
3. Two to four times a month
4. Two to three times per week
5. Four or more times a week
8 Don't Know/No Response

How many drinks containing alcohol do you have on a typical day when you are drinking?
1. 1 or 2
2. 3 or 4
3. 5 or 6
4. 7 to 9
5. 10 or more
8. Don't Know/No Response

- Based on the above questions, the following profiles were created, which is consistent with other national surveys, including the 2004 Canadian Addiction Survey:

i. *abstainers* have not consumed alcohol in the twelve months preceding the 2002 survey;
ii. *light- infrequent drinkers* drink less than once a week, with never having consumed five or more drinks;
iii. *light-frequent drinkers* reported drinking once a week or more and never reported drinking more than five drinks on a typical day of drinking;
iv. *heavy- infrequent drinkers* reported drinking less than once a week, with five drinks or more when alcohol was used;
v. *heavy- frequent drinkers* reported drinking more than once a week and consumed more than five drinks when drinking.

2. **Heavy Drinking**

How often do you have six or more drinks on one occasion?
1. Never
2. Less than monthly
3. Monthly
4. Two to three times per week
5. Four or more times per week
8. Don't Know/No Response

- This question was left in its present condition

3. **Drinking at Work & Drinking within Four Hours of Arriving at Work**

How often have you consumed alcohol in the past 12 months...

	Never	Once a week	2-3 times a week	4+ times a week	Don't know/ No response
a. while at work					
b. within four hours of arriving at work					

- Each question was recoded into two separate variables reflecting those who have *never* consumed alcohol while at work and those who have; as well as those who have *never* arrived at work within four hours of drinking, and those who have.

Other Substance Use Variables

1. **Tobacco Use**

How many cigarettes do you usually smoke per day?

- Applying definitions from Health Canada, the following smoker profiles were created:
  i. *Non-smokers* are those who indicate they have not smoked in the month preceding the 2002 survey;
  ii. *light smokers* consume between one and ten cigarettes daily;
  iii. *moderate smokers* consume between eleven and nineteen cigarettes daily; and
  iv. *heavy smokers* consume twenty cigarettes or more per day.

2. Cannabis Use

Have you used any of the following in the last 12 months...

			If yes, how often in the last 12 months...					
	Yes	No	Less than 1 time/month	1-3 times/ month	Once a week	2-3 times/week	4-6 times/week	Daily
a. marijuana/ hash								

- Responses were recoded in order to create a profile of respondents who use cannabis on a monthly basis, weekly basis, and daily basis

3. Work Environment (Cannabis)

On a 4-point scale, with 1 being Never, 2 Sometimes, 3 Most of the time and 4 being Almost always, please tell me how often each of the following occur in your workplace:

	Never	Sometimes	Most of the time	Almost always	Don't know/ No response
Street drugs are available near the workplace					
Street drugs are used in my workplace					
Street drug use is a socially acceptable activity among people that work here					

- A weighted index was constructed where respondents received a score of "3" for each "almost always" response, "2" for "most of the time", "1" for "sometimes", and "0" for "never"

Appendix B-

The Logic of Reducing the Categories of Marital Status

There are a number of reasons for coding marital status in two categories in this dissertation, as opposed to keeping the variable in its original form. Although it is recognized that this method may not be superior to retaining the original five categories, the findings are still useful and valuable to providing information on the impact of marital status on drinking patterns.

The most important reason is statistical. As stated in the measures section of this dissertation, in order to allow for accurate logistic regression results, a sufficient number of cases are needed in each category. When statistical analyses were performed on the expanded categories, it was found that among women, there were not enough cases for those in the heavier drinking categories (i.e., heavy-frequent drinkers) and among men, there were not enough cases for those in the lighter drinking categories. As a result, it would be impossible to report on such drinkers by marital status at all. By creating two categories, there is the capability to report such results for all drinkers.

Furthermore whether or not the categories are collapsed did not affect the overall results reported in this thesis. If significant findings did not emerge for marital status in two categories, they similarly did not emerge when examining five[33]. The only difference, albeit an important one, is the inability to identify the group who is drinking when using expanded marital status categories. Although this may appear to be a major concern, it remains that the focus of this dissertation is not on marital status; it is not a core variable under investigation, but instead one that is being controlled for. Moreover,

[33] For example, when examining gender composition in three categories and drinker profile, marital status (two categories) did not emerge as significant for heavy-infrequent female drinkers. This same finding was observed when examining all five marital status categories.

marital status is a control variable because research has consistently demonstrated the relationship between alcohol consumption and marital status.

In Western populations, the most consistent findings have been that married individuals drink less than never married and divorced individuals (Ostermann, Sloan, & Taylor, 2005; Wilsnack & Wilsnack, 1991). In fact, some researchers note that there are more important characteristics that affect drinking than marital status (Matzger, et al., 2004; Hammer & Vaglum, 1989; Hill & Chow, 2002). Most important to this dissertation is the finding in past research that occupational status explained more of the variance in alcohol consumption than did marital status and income (Hammer & Vaglum, 1989), and furthermore, occupation has been suggested as being a major factor to the development of alcoholism (Mandell, et al., 1992). Most recent, a U.S. national study on illicit drug use in the workforce and workplace did not even consider marital status but instead, focused on occupation, type of worker, gender, age, etc. (Frone, 2006). Therefore, although marital status is a factor for predicting drinking, there are other characteristics that effectively impact the outcome.

Perhaps the most significant findings regarding marital status show that rates of both heavier drinking and drinking problems among divorced or separated women were quite similar to rates among married women (Hilton, 1991 as cited in Wilsnack & Wilsnack, 1991). Among Canadian women, Wilsnack and Wilsnack (1991) report that divorced, separated and married women had virtually identical rates of drinking. These types of findings suggest that those who are married or have been married, share a common drinking style which is different from those who have never been married.

Conceivably, the aforementioned findings are the reasoning behind other researchers who have also treated marital status as a dichotomous variable (Gius, 2004; Lyon & Schwab, 1995; Wilsnack & Cheloha, 1987). It is clear that dichotomizing marital status as done in this dissertation is not a completely novel concept. For instance, Wilsnack and Cheloha (1987) dichotomized marital status into "divorced or separated" and "all others"; Gius (2004) used the categories "married" and "otherwise". Thus, measuring marital status in two categories is not an unusual approach.

To reiterate the major points discussed, the logic for reducing the number of marital status categories stems from a number of motives. By collapsing the categories, there are an appropriate number of respondents allowing for useful and reliable statistical results. In addition, the overall general findings do not differ whether the categories are expanded or not. However the most important reason is based on the fact there are other more significant predictors of drinking than marital status. Accordingly, this thesis examines the workplace culture and job stress as core variables, and other empirically established variables as control. It also appears that the "ever married" individuals are drinking similarly to "never married" individuals, thereby substantiating the use of these two categories throughout this dissertation. Finally, dichotomizing marital status is not completely new as other researchers have also followed this method.

Appendix C-

Quasicomplete Separation of Data

The issue of quasicomplete separation of data must be addressed as it has been noted in the findings of this dissertation[34]. A common issue encountered by researchers is that of *separation:* the presence of one or more variables that perfectly predict the outcome of interest (Zorn, 2005). There are three types of separation- complete, quasicomplete and overlapped. When separation occurs, both the logistic regression coefficients, and their standard errors will tend to be extremely large. This is also evident with quasicomplete or quasi-separation of data, which yields infinite estimates.

Quasicomplete separation is more common in smaller datasets, as well as in cases when there are several qualitative predictors. A combination of these two criteria is more likely to produce cells that are empty (i.e. cells with zero observations), or have very small observations, thus generating infinite estimates as seen in certain circumstances with the current data. When data are separated in some form, the results do not provide conclusive evidence regarding the impact of the predictors (Menard, 2002; Webb, Wilson & Chong, 2004). As a result, the researcher must choose from a number of "problematic" alternatives for dealing with this issue (Zorn, 2005). According to Zorn, researchers quite often encounter separation, but modify their models without alerting readers to this fact. Consequently, separation is far more widespread than its presence in published work suggests. Subsequently, the issue of separation has received only marginal attention (Ibid.).

Returning to the ways of dealing with separation, the most commonly used method is to remove the variable or variables producing such results from the analysis.

[34] This discussion is not intended to cover the full realm of when separation of data occurs, but instead to provide some information on the issue. For details on this subject, refer to Zorn (2005).

This is the dominant approach in sociology, as well as other social science disciplines (Zorn, 2005). Since quasicomplete separation only occurred in some models, it was decided to keep the variable of gender composition (in three categories), inform the reader when it occurs, but to *not* report the findings as significant because it is unreliable. Omitting a variable altogether when it clearly bears a strong relationship to the drinking variables was simply not an option. In this sense, the current study acknowledges the issue of quasicomplete separation, and does not fall into the predicament of discounting it, as others have done.

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