

ALCOHOL CONSUMPTION AND HIGH-RISK
SEXUAL BEHAVIOUR IN A UNIVERSITY POPULATION

NICOLE M. MASTERS

Risk Behaviour and Alcohol in University

Alcohol Consumption and High-Risk Sexual Behaviour in a University Population.

by

Nicole M Masters

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Abstract

The current study explored the relationship between high-risk sexual behaviour and alcohol consumption among undergraduate university students. More specifically, the relationship between high-risk sexual behaviour and alcohol consumption was explored within the context of students' living arrangements (i.e., living in university residence versus those living off campus). Fifty university students from Memorial University in St. John's, Newfoundland participated in the study. Participants completed a demographic questionnaire, a sexual behaviour questionnaire, and an alcohol consumption questionnaire (i.e., the AUDIT). Descriptive data analysis consisted of displaying means, frequencies, and percentages of the study variables, such as drinking patterns, number of sexual partners, high-risk sexual behaviour, and alcohol consumption. A linear regression model was used to explore the three way relationship between high-risk sexual behaviour, alcohol consumption, and living arrangements. The results of this study did not indicate a significant relationship between high-risk sexual behaviour, alcohol consumption, and living arrangements; however, trends in the data highlight results found in the existing empirical literature. The findings of this research provide further insight into the relationship between high-risk sexual behaviour and alcohol consumption, and will hopefully fuel future research in this area that will assist educators and researchers in developing tools and policies that will ultimately lead to a reduction of these risk behaviours.

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Table of Contents

Abstract	ii
Acknowledgements	iii
Table of Contents	v
List of Tables	viii
List of Figures	ix
List of Appendices	x
Chapter 1: Introduction	1
1.1 Introduction	1
1.2 Study Rational	2
1.3 Study Objectives	3
1.4 Study Significance	4
1.5 Theoretical Framework	5
1.5.1 Theory of Planned Behaviour	5
1.5.2 Social Control Theory	8
1.6 Variables	11
1.6.1 Student Living Arrangements	11
1.6.2 Alcohol Consumption	11
1.6.3 High-Risk Sexual Behaviour	12
1.7 Research Questions and Hypotheses	14
Chapter 2: Literature Review	15
2.1 The Transition to University Life	15

2.2 Alcohol Consumption in University	17
2.3 High-Risk Sexual Behaviour in the University Context	21
2.4 The Present Study	23
Chapter 3: Method	25
3.1 Participants	26
3.2 Measures	26
3.2.1 Demographic	26
3.2.2 Sexual Behaviour Questionnaire	27
3.2.3 Alcohol Consumption Questionnaire	27
Chapter 4: Results	29
4.1 Data Analysis Overview	29
4.2 Demographic Analysis	30
4.3 Descriptive Analysis	32
4.3.1 Alcohol Consumption	32
4.3.2 Sexual Behaviour	36
4.3.3 Analysis of Relationship between High-Risk Sexual Behaviour, Alcohol Consumption, and Student Living Arrangement	38
Chapter 5: Discussion	42
5.1 Alcohol Consumption	43
5.2 Sexual Behaviour	45

5.3 Alcohol Consumption, High-Risk Sexual Behaviour and Living Arrangements	47
5.4 Study Limitations	48
5.5 Directions for Future Research	50
Conclusion	53
References	54

List of Tables

Table 1: Categories of Alcohol Consumption in Men and Women.

Table 2: Student's Faculty and Year of Study

Table 3: Students Living Arrangements

Table 4: Relationship Status

Table 5: Breakdown of Levels of Alcohol Consumption

Table 6: Breakdown of Levels of Sexual Behaviour

Table 7: Frequency of Alcohol Consumption based on Living Arrangement

Table 8: Sexual Behaviour Based on Biological Sex

Table 9: Descriptive Breakdown of Sexual Behaviour

Table 10: Classification of Student's Sexual Behaviour Based on Living Arrangement

Table 11: Correlation of Regression Variables

Table 12: Standard Multiple Regression of Alcohol Consumption and Living

Arrangements on High- Risk Sexual Behaviour

Table 13: Frequency of Student's Using Condoms Based on Level of Alcohol

Consumption

List of Figures

Figure 1: Percentage of students who drink, based on occasion.

Figure 2: Mean number of lifetime sexual partners for three levels of alcohol consumption.

List of Appendices

Appendix A- Demographic Questionnaire

Appendix B- Sexual Behaviour Questionnaire

Appendix C- Alcohol Consumption Questionnaire

Appendix D- Letter of Informed Consent

Appendix E- Pitch to Participants

Appendix F- Email to Participants

Chapter 1

Introduction

The following study explores the relationship between high-risk sexual behaviour, alcohol consumption and living arrangements amongst university students. Each chapter provides an in-depth description of the various stages of the current research. Chapter one provides an introduction to the topic, the study objectives, the study significance, and a brief overview of two theoretical viewpoints used to explain risk behaviour within the current study. In addition to this, the research variables are defined and research questions outlined. Chapter two provides a literature review of the current and past research that has explored the topics of high-risk sexual behaviour, alcohol consumption, living arrangements and university life. Chapter three outlines the methods used to recruit participants for the study, along with an overview of the participants themselves. Further, a description of the method of data collection is provided along with a detailed description of the measures used for data collection. Chapter four describes the results of the study. An in-depth analysis of each variable is provided along with an analysis of the relationship between variables. The final chapter provides a discussion of the results, highlighting the connections to current research, and the implications they have. Limitations of the study are discussed along with possibilities for future research that will add to the understanding and possible control of the risk behaviours explored in the current study.

Study Rational

It is a common assumption that alcohol consumption and high-risk sexual behaviour frequently co-occur (Cooper, 2006). In fact, many people believe that drinking increases the likelihood of sexual activity and promotes high-risk sexual behaviour, including sex with strangers, and sex without protection (Cooper, 2006; Testa & Collins, 1997). In addition to the beliefs of most laypeople, the overwhelming majority of scientific literature indicates that sexual risk taking and heavy drinking do frequently co-occur (Cooper, 2006; Cooper, 2002; Perkins, 2002). Further, these findings have been found to exist amongst a more specific population, university students (Abbey, Parkhill, Buck, & Saenz, 2007; Cooper, 2002). Cooper (2002) reviewed studies examining the association between drinking and risky sex in samples of college students. The results of this review indicated that amongst college students, level of alcohol use (i.e., both quantity and frequency) predicted level of sexual involvement. Results of this study also suggested that drinking prior to intercourse was associated with risky partner choice and decreased risk discussion on that occasion, and that heavy drinkers were nearly three times as likely to have had multiple sex partners in the past month than were non heavy drinkers (Cooper, 2002). A New Zealand study that used an online questionnaire to examine alcohol related consequences, effects of other students' drinking on other students, and positive aspects of drinking, found that 25 percent of the university students sampled reported risky sexual behaviour as a result of drinking alcohol in the previous three months (Cashell-Smith, Conner, & Kypri, 2007). A Canadian study, which used introductory psychology students to test two competing theories about the effects of

alcohol on intentions to engage in risky behaviour, found that when impelling cues were present, intoxicated people reported greater intentions to have unprotected sex than did sober people (MacDonald, Fong, Zanna, & Martineau, 2000). It is clear that high-risk sexual behaviour and alcohol consumption are co-occurring issues in the university setting, and thus a great concern as the result of this behaviour can be harmful.

Study Objectives

The main objective of the current study was to explore the relationship between high-risk sexual behaviour and alcohol consumption of undergraduate university students living in university residence versus those living off campus. The majority of research that currently exists surrounding high-risk sexual behaviour and alcohol consumption in a university setting focuses on the university as a whole as opposed to determining the most at risk populations within the university setting (Abbey et al., 2007; Cooper, 2002). In addition to replicating other studies in an attempt to highlight the relationship between alcohol consumption and high-risk sexual behaviour in a Newfoundland context, the current study targeted particular populations within the university setting that may be at higher risk for such risky behaviour. An in-depth measurement of high-risk sexual behaviour and alcohol use combined with a more detailed examination of student living arrangements offered an opportunity for a unique contribution to the research literature, which included an examination of the relationship(s) between student living arrangements, alcohol consumption, *and* high-risk sexual behaviour.

Study Significance

A study such as this is important as the consequences of risky sexual behaviour can be quite detrimental. High-risk sexual behaviour can result in any number of negative outcomes such as unwanted pregnancy or sexually transmitted infections (STI's), which can range from herpes to HIV infection. These are serious consequences that can drastically impact a person's life. A nationwide study of Canadian university freshman found that nearly six percent of sexually experienced students had been diagnosed with an STD at least once (MacDonald et al., 1990). As of 2004, all three reportable bacterial STI's were continuing an upward climb, affecting more and more Canadians (Public Health Agency, 2007b). In Canada, some of the highest rates and increases in STI's are among young people ages 15 to 24. According to the Public Health Agency of Canada (PHAC) genital chlamydia remains the most commonly reported STI and notifiable disease in Canada. The overall chlamydia rate in 2004 demonstrated a 70 percent increase from 1997; the rate of gonorrhea rose by 94 percent (Public Health Agency of Canada, 2007a). Young adults represent a significant percentage of these infections. PHAC data show that young adults, under the age of 30, account for 80 percent of reported chlamydia cases, 15-24 year old women account for 70 percent of the reported gonorrhea cases in women, and the most affected population of men were those between the ages of 20-29 (Public Health Agency of Canada, 2008).

Further, in 2004, 39.4 million people worldwide were living with HIV. In 2005, it was estimated that approximately 58,000 Canadians were living with HIV infection (Public Health Agency of Canada, 2007c). According to a UNAIDS report, an estimated

11.8 million people aged 15 to 24 years are living with HIV/AIDS, and half of all new infections worldwide are occurring among young people (UNAIDS, 2003). In 2006, young adults from the ages of 20-24 represented three percent of all reported AIDS cases (World Health Organization, 2007).

The results of the present study would be beneficial in guiding programs and policies to ultimately reduce high-risk sexual behaviour and heavy drinking in a university setting. The present study hoped to do this by exploring sub populations within the university to target areas of specific need (e.g., university residences). The results of this study may also be used to educate the student population about the risks that are associated with both high-risk sexual behaviour and heavy drinking.

Theoretical Framework

Theory of Planned Behaviour

The theory of planned behaviour (TPB) is an extension of the theory of reasoned action (TRA). The theory of reasoned action was proposed by Fishbein and Ajzen in 1975. This theory originated with the relationship between beliefs and attitudes. This model is based on the idea that one's motivation to perform a given behaviour is captured exclusively by one's behavioural intentions, where behavioural intentions are a function of an individual's attitude toward the behaviour and subjective norms surrounding the performance of the behaviour. Attitude toward the behaviour is defined as the individual's positive or negative feelings about performing a behaviour, and subjective norm is defined as an individual's perception of whether people important to the individual think the behaviour should be performed. One limitation to this theory is the assumption that

individuals will be free to act without limitation. In practice, constraints such as limited ability, time, environmental or organizational limits, and unconscious habits will limit the freedom to act. As a result of these limitations, the theory of planned behaviour was developed.

TPB is grounded on the same principles as the TRA with the addition of the concept of behavioural control, which is the realization of the influence of an individual's perception of the ease with which the behaviour can be performed (Ajzen, 1985; Conner, Warren, Close & Sparks, 1999). TPB views the control that people have over their behaviour as falling on a continuum from behaviours that are easily performed to those requiring considerable effort and resources. According to the TPB, a certain set of motivational factors leads to an intention to act in a certain way (Ajzen, 1991). Presented with the right opportunity, the translation of intention into behaviour occurs (Collins & Carey, 2007).

Past research, focusing on alcohol consumption, has frequently shown the prediction of behaviour from intention (Armitage, Norman & Conner, 2002; Conner et al., 1999; Norman, Armitage, & Quigley, 2007; Norman & Conner, 2006). When applying the three components of the TPB (i.e., attitudes, social norms, and perceived behavioural control), it has been shown that (a.) positive attitudes towards drinking correlate positively with quantity and frequency of future alcohol consumption (Burden & Maisto, 2000; Simons & Gaher, 2004); (b.) university students report being more influenced by their peers than by other adults, and their drinking behaviours have been found to be influenced by both peer drinking habits and perceived peer approval of

drinking (Larimer, Turner, Mallett, & Markman-Geisner, 2004; Perkins, 2003), and (c.) perceived behavioural control (i.e. one's belief about the level of control he/she possess over any one situation) has been shown to be a strong predictor of college drinking (Johnston & White, 2003; Young Connor, Ricciardelli, & Saunders, 2006). It has been shown that drinking refusal self-efficacy and perceived behavioural control predict lower drinking quantity, and frequency (Johnston & White, 2003; Young, Connor, Ricciardelli, & Saunders, 2006).

In addition to the application of the TPB to alcohol consumption, it has also been widely applied to high-risk sexual behaviour (Gebhart, Empelen, van Beurden, 2009; Albarracin, Johnson, Fishbein, & Muellerleile, 2001). More specifically, it has been applied to condom use (Albarracin, Johnson, Fishbein, & Muellerleile, 2001). The theory, as applied to condom use/high-risk sexual behaviour, states that behaviour is a function of one's intention and one's perceived control of the behaviour (Hendrikson, 2008). One's intention, according to the TPB is influenced by both attitudes and social norms. According to the TPB, attitude relates directly to the behaviour, therefore it is attitude towards condom use that applies and not attitudes towards condoms themselves (Hendrikson, 2008). Social norms, once again, are the perceived social pressures, or the perception of how people close to the individual feel the behaviour should be performed or not (Hendrikson, 2008). A meta-analysis of nine studies showed that the TPB and its components predict both self reported condom use and condom use intentions in a sample from varying cultures (Boer & Mashamba, 2005).

Social Control Theory

Social Control theory was originally developed by Travis Hirschi (1969). According to Hirschi (1969), "we are moral beings to the extent we are social beings" (p. 82). The theory is rooted in its conceptual connection between individuals and conventional social institutions (Booth, Farrell, & Varano, 2008). The premise of social control theory is that deviance is normal and conformity, rather than deviation, must be explained (Akers & Sellers, 2004; Hirschi, 1969). Hirschi proposed that the presence, absence, or strength of four main social bonds would determine the path an individual would choose. Those four main social bonds which formed the basis for controlling individuals' behaviours were: attachment, commitment, involvement, and belief (Hirschi, 1969, 2004). Social control theory posits that strong social bonds inhibit delinquency whereas weak bonds offer little resistance to offending (Booth et al., 2008).

Attachment refers to the symbiotic relationship between a person and society (Alston, Harley, & Lenhoff, 1995). Commitment refers to the vested interest an individual has in social activities and institutions (Hirschi, 1969). Involvement speaks to the level of interaction with socially approved activities and agencies (Booth et al., 2008). Finally, the last dimension of social control is belief. This final element of social control relates to an individual's level of belief in the moral validity of shared social values and norms (Alston, Harley, Lenhoff, 1995).

To date this theory has proven quite versatile in explaining a variety of deviant behaviour such as high-risk sexual behaviour and alcohol consumption (Booth et al., 2008; Buhi & Goodson, 2007). Hirschi (1969) claimed that delinquents and non-

delinquents share the same basic impulses to delinquency. He argued that they differ only in the degree to which they are constrained from yielding to these impulses. Thus, all individuals have the same impulses to commit such acts as high-risk sexual behaviour and alcohol consumption; however, the strength of positive social bonds possessed by some individuals provides the ability to resist such activities. Those individuals with strong positive social bonds are more likely to conform to societal norms, whereas those with weak or broken bonds are more likely to deviate from those norms and participate in delinquent behaviour (Booth et al., 2008).

Social control theory has been explored by numerous researchers to explain and predict high-risk sexual behaviour (Miller, Benson, & Galbraith, 2001; Siebenbruner, Zimmer-Gembeck, & Egeland, 2007). The influence of attachments to family has been shown to have significant influence on an individual's likelihood of participating in high-risk sexual behaviour (Miller et al., 2001; Siebenbruner et al., 2007). Miller et al. (2001) found that positive family relationships corresponded to delayed onset of sexual intercourse and lower levels of risky sexual behaviour. In addition to attachment, commitment and belief are two dimensions of social control theory that influence risk behaviour. Abar, Carter, and Winsler (2009) found that level of commitment and belief in religion influenced individuals' high-risk sexual behaviour. Abar et al. (2009) showed a negative correlation between high belief and commitment to religion and high-risk sexual behaviours. The higher an individual's commitment and belief in religion, the lower his/her instance of high-risk sexual behaviour. In general, the higher the level of the four

dimensions of social control in one's life, the less likely he/she is to participate in high-risk sexual behaviour (Booth et al., 2008).

The same idea can be applied to alcohol consumption. For many years, the theory of social control has been used to explain high-risk drinking behaviours. Cherry (1987) examined the influence of attachment, commitment, and involvement on alcohol consumption. He found that "students with strong bonds to the college community, religious institutions, and family drank less than students with weakened or broken bonds" (p. 134). More recently, Bahr, Hoffman, and Yang (2005) explored the relationship between parental and peer attachments on alcohol consumption. They found that peer drug use and attitudes had relatively strong effects on individuals' drug use. In addition, Bahr et al. found that parental attitudes towards drugs and alcohol significantly influenced alcohol consumption by their children. The more negative views of alcohol and drug use shared by parents, the more likely their children would abstain from high-risk drinking behaviour (Bahr et al., 2005).

Both the TPB and social control theory offer significant insight into the occurrence of risk behaviours, including alcohol consumption and risky sexual behaviour. These theories provide understanding, and offer the necessary theoretical framework for education and program planning that might eventually assist in combating the detrimental effects of both alcohol consumption and high-risk sexual behaviour.

*Study Variables***Student Living Arrangements**

Student living arrangements were broken down into three primary categories: (a) living in a university residence, (b) living away from home but not on campus (This second category was further broken down into two subcategories: 1) sharing an apartment/house not located on campus property and 2) living alone in a house/apartment not located on campus property), and (c) living at home with parent(s)/guardian(s).

Alcohol Consumption

As discussed previously, a variable such as 'alcohol consumption' can be difficult to operationally define, as each and every individual is affected differently through consumption. Typically, heavy/binge drinking criteria are set at four+ drinks for females and five+ drinks for males, per occasion (Naimi et al., 2003; Wechsler & Nelson, 2001). The grouping of drinkers into a single risk category such as "binge/heavy drinking" may not capture adequately the nature of problem drinking behaviour (Read, Beattie, Chamberlain, Merrill, 2008). Further, this definition fails to take into account the frequency of alcohol consumption. The Alcohol Use Disorders Identification Test (AUDIT) was developed as a simple method of screening for excessive drinking and to assist in brief assessment (Babor, Higgins-Biddle, Saunders, & Monterio, 2001). Developed by the World Health Organization (WHO), the AUDIT uses three domains: (a) frequency of alcohol use, (b) dependence symptoms, and (c) harmful alcohol use, to define alcohol consumption. Based on experience gained in a study of treatment matching with persons who had a wide range of alcohol problem severity, AUDIT scores

were compared with diagnostic data reflecting low, medium and high degrees of risky alcohol consumption (Babor et al.). The classifications into low to high-risk categories are based on the general definitions outlined below (Elkhir & Lambert, 2007).

TABLE 1. CATEGORIES OF ALCOHOL CONSUMPTION IN MEN AND WOMEN

CATEGORY	ALCOHOL CONSUMPTION IN MEN	ALCOHOL CONSUMPTION IN WOMEN
LOW RISK OR "SENSIBLE"	21 UNITS/WEEK OR UP TO 4 UNITS/DAY	14 UNITS/WEEK OR UP TO 3 UNITS/DAY
INCREASING RISK OR "HAZARDOUS"	22-50 UNITS/WEEK	15-35 UNITS/WEEK
HIGH-RISK OR "HARMFUL"	>50 UNITS/WEEK	>35 UNITS/WEEK

Note: a **unit of alcohol** is defined as 10 millimetres or approximately 8 grams of ethanol (ethyl alcohol)

Based on the above definitions, the AUDIT classifies its three risk categories as such: low risk alcohol consumption- a score of 0-7, hazardous risk alcohol consumption- a score of 8-15, and high-risk alcohol consumption- a score of 16-19. In order to provide a clearer and more precise picture of alcohol consumption, the present study categorized alcohol consumption based on these AUDIT classifications. A description of the AUDIT questionnaire is provided in Chapter three.

High-Risk Sexual Behaviour

Similar to alcohol consumption, a variable such as high-risk sexual behaviour can be defined in many ways. Colman and Carter (2005) define high-risk sexual behaviour as "sexual intercourse without the use of contraception or any sexual behaviour that was subsequently regretted" (p. 651). Dahal, Hennink, and Hinde (2005) define it as having multiple partners, or having one non-regular partner with whom a condom was not used. Olisah, Adekeye, Sheikh, and Yusuf (2009) categorized risky sexual behaviour into two categories, low or high-risk. The criteria used by Olisah, Adekeye, Sheikh, and Yusuf

(2009) to define risky sexual behaviour included: (a) not having used a condom at the last sexual encounter, (b) having had an occasional partner at the last sexual encounter, (c) having had three or more partners in the last 12 months, (d) having had six or more cumulative lifetime partners, (e) having a history of sexually transmitted diseases, and (f) having received or given money or a gift in exchange for the most recent sexual encounter. Respondents who reported two or less of these criteria were classified as low risk, while those reporting two or more of these criteria were classified as high-risk. Miller, Simon, Miller, Long, Yu, and Asch (1999) took a more simplistic approach and defined high-risk sexual behaviour as having had two or more partners in the past 12 months and not always using a condom. Similarly, Garcia-Pineros et al., (2006) took a broader approach and defined high-risk sexual behaviour as having had five or more lifetime sexual partners.

Based on the research mentioned above, and in an attempt to capture a true representation of high-risk sexual behaviour, the present study defined high-risk sexual behaviour as: having had two or more partners in the past three months without always using a condom and/or having five or more lifetime sexual partners.

In order to explore the complex relationships that exist between the various high-risk sexual dimensions it was decided that the variable "high-risk sexual behaviour" would be divided into two categories: low-risk sexual behaviour and high-risk sexual behaviour. The placement into each category was based on participant responses to the "Sexual Behaviour" questionnaire. Those participants who responded to having had two or more sexual partners in the past three months and not always using a condom and/or

have had five or more lifetime partners are classified as “high-risk”, while those who have had less than two partners in the past three months, have always used condoms, or have had less than five lifetime sexual partners were classified as “low-risk.”

Research Questions and Hypotheses

Based on previous research (Cooper, 2002; Cooper, 2006; Perkins, 2002), the results of this study are expected to highlight a significant relationship between high-risk sexual behaviour and alcohol consumption. More specifically, it is hypothesized that high-risk drinkers will show the highest frequency of high-risk sexual behaviour. Based on findings from Adlaf et al. (2005) and McCormick, Cohen, Corrado, Clements, and Rice (2007), who found that students living on campus (i.e., in residence) demonstrated higher instances of heavy alcohol consumption, and based on the plethora of research highlighting the relationship between alcohol consumption and high-risk sexual behaviour, the present study further hypothesizes that: (a) students living on campus or off campus with roommates will demonstrate significantly higher instances of high-risk sexual behaviour compared to those students living off campus with family or off campus alone and (b) students living on campus or off campus with roommates will have significantly higher numbers of students classified as hazardous or high-risk drinkers than those living off campus with family or off campus alone. In addition, several exploratory analyses will be conducted between alcohol consumption and high-risk sexual behaviour and other key variables including age, sex, and the number of sexual partners, etc...

Chapter 2

Literature Review

The Transition to University Life

The transition into university life is a key risk period. It brings with it many new pressures and uncertainties (Ross & DeJong, 2008). One can experience a range of feelings such as hope, dread, anxiety, or excitement. The flood of emotions that accompanies the new and unique experience of attending university is endless. Entering university may be a source of strain and an acute stressor (Gall, Evans, & Bellerose, 2000). During this emotionally intense and disorienting time, meeting new people, making new friends, and creating a new social support system are of paramount importance in having a successful college experience (Christie & Dinham, 1991).

For many students, entering university takes them away from home and away from the support and contact of family and pre existing friends. Young adults move from the sheltered world of high school and parental care towards independence and freedom. Depending on the individual, handling this new and foreign experience can induce or increase psychological distress (Dwyer & Cummings, 2001).

Fitting in and meeting new friends is a challenge faced by many university students. Forming new social networks can be a stressful but rewarding experience. New social networks can help students gain independence, provide support, and influence values and behaviour (Friesz, 2009). The influence of one's social network can bring with it new experiences, encourage or discourage past behaviour, and ultimately shape one's future

behaviour. Alcohol has historically been used as an adjunct to social interactions in almost all societies (Heath, 2000). Thus, it is inevitable that university students will be impacted by patterns of alcohol consumption during their university experience (Theobald, 2002). The majority of students want to fit in with their peers. In order to do this they generally partake in the activities they feel are 'normal' amongst their peer group. A recent study conducted by Moreira, Smith, and Foxcroft (2009) found that if a student believes his or her peers drink heavily, it will likely influence the amount of alcohol the student personally drinks. In order to fit in and be accepted students will follow what they believe to be the 'normal' behaviour of their peers. A study by Colby, Colby, and Raymond (2009) found that students view university as a time out from real life responsibility and accountability and thus have low standards of behaviour for themselves. They view their university years as a break from the inevitable transition into adulthood. Although this transition is inevitable, it is not eagerly anticipated, and during this 'time out' students feel their irresponsible behaviour is tolerated, or even expected (Colby et al. 2009).

Further influenced by social norms is students' risky sexual behaviour. "In most societies sexual intercourse is perceived to be one of the most intimate and spontaneous behaviours, about which, and during which, verbal communication is often unacceptable" (Svenson, Carmel, & Varnhagen, 1997, p. 64). Discussing sexual history and safe sex is often embarrassing, especially for young adults. The need to 'fit in' and be considered 'normal' in university could again influence one's behaviour when it comes to sex. Peer influence is a known source of reinforcement that shapes behaviour (Valliant & Scanlan,

1996). The fear of social reprisals, including ostracism, could significantly influence one's behaviour when it comes to safe sex practices.

Alcohol Consumption in University

University life contains a culture where heavy drinking is normative, and belonging to this culture often requires students to drink alcohol (Gliksman, Demers, Adlaf, Newton-Taylor, & Schmidt, 2000; Keeling, 2002; Kropp, Lavack, Silvera, & Gabler, 2004; Weschler et al., 2000).

Binge drinking is a common trend amongst university students; however, a uniform definition of binge drinking has proven difficult to develop. A Swedish study, for example, defined a binge as the consumption of half a bottle of spirits or two bottles of wine on the same occasion (Hansagi, Romelsjo, Gehardsson de Verdier, Andereasson, Leifman, 1995). Similarly, a study in Italy found that consuming an average of eight drinks a day was considered normal drinking (Farchi, Franza, Mariotti, Menotti, Seccareccia, Torsello, & Fidanza 1992). The National Institute on Alcohol Abuse and Alcoholism (NIAAA) National Advisory Council approved the following definition/statement: A "binge" is a pattern of drinking alcohol that brings blood alcohol concentration (BAC) to 0.08 gram percent or above (NIAAA, 2004). For the typical adult, this pattern corresponds to consuming five or more drinks (male), or four or more drinks (female), in about two hours. The Harvard School of Public Health College Alcohol Study defined binge drinking as the consumption of five or more drinks in a row for men and four or more drinks for women on one or more occasions in the past two weeks (Wechsler and Austin, 1998; Wechsler, Dowdall, Davenport, Castillo & 1995b;

Wechsler and Nelson, 2001, 2006). The Canadian Campus Study (2004) further divides drinking patterns into sub categories: a) light infrequent drinking- indicated by the usual consumption of less than five drinks daily and drinking less frequently than on a weekly basis, b) light-frequent drinking- indicated by the usual consumption of less than five drinks on the days they drink and consuming alcohol weekly, c) heavy pattern drinking- indicated by the usual consumption of more than five drinks on the days they drink and consuming alcohol weekly and d) heavy-infrequent drinking- indicated by the usual consumption of more than five drinks on the days they drink and drinking less frequently than on a weekly basis. The definition adapted by the Harvard School of Public Health College Alcohol Study is the most widely used and accepted in current literature.

Studies in the past have found that prevalence of alcohol use exceeds 90 percent in university settings (Gliksman, Newton-Taylor, Adlaf, Dewitt, & Giesbrecht et al., 1994; Spence & Gauvin, 1996; Svenson, Jarvis, & Campbell, 1994) and that a substantial minority (i.e., about 40 percent) can be classified as heavy/binge drinkers (Cooper, 2002). According to the Harvard School of Public Health's College Alcohol Study, binge drinking rates at colleges and universities have changed very little over the last decade (Wechsler & Nelson, 2008; Wechsler et al., 2002). This is not surprising as university life sometimes provides a new found sense of independence for students whereby they may feel free to experiment with new, and often risky behaviour.

According to the Adlaf, Demers, & Gliksman (2004) alcohol was used by 85.7 percent of Canadian students in the past year. Although Canadians were more likely to drink in the past month in comparison to their U.S. neighbors, U.S. college students were

found to have higher rates of binge drinking (i.e., 38.5 percent vs. 30.2 percent) (Johnston, O'Malley, Bachman, & Schulenberg, 2004; Kuo, Adlaf, Lee, Gliksman, Demers, & Wechsler et al., 2002).

When drinking patterns were explored it was found that Canadian undergraduate students display diverse drinking patterns. The Canadian Campus Survey (2004) found that two drinking types represent more than half of Canadian Students: light- infrequent (i.e., 35.8 percent of the students surveyed) and light-frequent drinking (i.e., 22.1 percent of the students surveyed). In addition to this, almost one-third of students reported a heavy pattern drinking, including 16.1 percent who reported heavy-frequent drinking and 11.7 percent who reported heavy-infrequent drinking. Overall, 18.5 percent and 6.6 percent of the undergraduates reported consuming five or more and eight or more drinks on a single occasion, once every two weeks or more frequently, respectively. According to the survey there is considerable variability in alcohol intake based on the context where the drinking occurs. Weekend drinking off campus was found to occur most frequently. Students drink in bars and clubs on roughly one occasion out of three (i.e., 35.5 percent). Nevertheless, most of the drinking occurrences take place on private premises, with over 40 percent of the drinking occurrences taking place in someone's home, and 7.2 percent in university housing (i.e., residences or fraternity houses).

As discussed above, according to the theory of planned behaviour (TPB) the proximal determinant of behaviour is the individual's intention to engage in the behaviour (Norman & Conner, 2006). There are three factors that influence one's intention to engage in a particular behaviour. The first is the individual's attitude toward

the behaviour, which can be either positive or negative, the second is the individual's perception of the social pressure to perform the behaviour, and the third is the individual's perception of the level of control (Ajzen, 1985). Depending on an individual's attitude towards drinking, how important he/she perceives drinking to be to his/her peers, and how much perceived control he/she feels over the situation will determine the likelihood that he/she will take part in drinking behaviours. Highly positive views of alcohol, along with the idea that drinking is seen as important by peers will lead to higher levels of alcohol consumption by an individual, which can ultimately lead to adverse effects (Johnston & White, 2003; Young, Connor, Ricciardelli, & Saunders, 2006).

Baron, Silberman and D'Alonzo (1998) identified several risk factors associated with binge drinking: being a white male between the ages of 17-23 and having a family history of drug abuse or depression, having an impulsive personality, having depression and or anxiety, showing signs of antisocial behaviour, and finally a motivational factor, drinking to get drunk. Although there are many socio-demographic variables that may explain binge drinking, it is important to identify the key proximal determinants that underlie the problem in order to encourage and implement more appropriate drinking behaviour programs (Norman & Conner, 2006). The current study explored both high-risk sexual behaviour and alcohol consumption patterns and trends in order to provide a clearer more precise picture of what is happening on this campus, in part, to offer suggestions for understanding and change.

High-Risk Sexual Behaviour in the University Context

Similar to drinking rates, several studies have suggested that the majority of university students (i.e., approximately 80 percent), have engaged in sexual intercourse (Cerwonka, Isbell & Hansen, 2000; Douglas, Collins, & Warren, 1997; Wechsler et al., 2000). In a survey of 60,000 Canadian households, Fisher and Boroditsky (2000) found that 82 percent of 18-24 year olds reported having had sexual intercourse. Further, students often report unsafe sexual practices, such as casual sex, multiple sex partners, and the lack of condom use (Cerwonka et al., 2000; Keller, 1993; Lear, 1995; McCormack, Anderton, & Barbieri, 1993; Siegel, Klein & Roghmann, 1999). A Canadian study by Rotterman (2005) reported that in 2003, between 21.5 percent and 43.6 percent of 15- to 24-year-olds in Canada reported not using a condom the last time they had sexual intercourse. On average, college students reported more than two sexual partners per year (DiLorio, Dudley, & Soet, 1998; LaBrie, Earleywine, Schiffman, Pedersen, & Marriot, 2005) and over 6 lifetime partners (Civic, 2000). These behaviours have consistently been found to increase risk of HIV and other STI's among the general population, and college students in particular (Fisher & Fisher, 1992; American College Health Association, 2007). Even with this risk of HIV and STI transmission, college students typically are inconsistent in their use of condoms and have multiple lifetime sex partners (Lewis, Miguez-Burbano, & Malow, 2009).

An American study conducted by the American College Health Association (2007) surveyed 34 colleges which included almost 24,000 students, and found that in the prior 30 days, over 43 percent had engaged in oral sex, over 46 percent had vaginal

intercourse, and a little over 4 percent had anal intercourse. Of those who had oral sex, fewer than 4 percent used a condom during the last episode, for vaginal intercourse 54 percent used a condom during the last act, and for anal intercourse over 26 percent used a condom during the last incident. About 35 percent of sexually-active students always use condoms and only half of those who reported being concerned about HIV always used condoms (Opt & Loffredo, 2004). About half of students reported that they never used condoms and only 10 percent used condoms 100 percent of the time (Prince & Bernard, 1998). Overall in the United States, as many as 400,000 college students have unprotected sex after drinking in a given year (Hingson, Heeren, Zakocs, Kopstein, & Wechsler, 2002). A study by Polacek, Johnston, Hicks, and Oswalt (2007) found that of their university student sample, only one fourth of those sexually active protected themselves 100 percent of the time during sexual intercourse. Fewer 21 to 25-year-olds protected themselves 100 percent of the time than did those in the 18 to 20 age group or the 26 to 49 age group. On college campuses in particular, date rape, sexual harassment, and unintended pregnancy are also pressing concerns (Abbey, 2002; Adams-Curtis & Forbes, 2004; Menard, Hall, Phung, Ghebrial, & Martin, 2003; O'Sullivan, Byers, & Finkelman, 1998; Oswalt, Cameron, & Koob, 2005).

Although risky sexual behaviour still remains an important concern in today's society, a 2004 Canadian study by Netting and Burnett showed some positive trends amongst young university students. Netting and Burnett (2004) surveyed Canadian University students over twenty years. Netting and Burnett's (2004) surveys conducted in 1980, 1990, and 2000 revealed a steady increase in safer sexual practices. Although the

results of this study show some positive developments in decision making amongst Canadian university students, the fact remains that high-risk sexual behaviour is still a significant concern amongst this population, which has dramatic implications for Canadian youth as well as society overall.

The Present Study

Typically, research exploring risky sexual behaviour and alcohol use in universities has encompassed the whole of the university population (Abbey, Parkhill, Buck, & Saenz, 2007; Cooper, 2002; George & Stoner, 2000; MacDonald et al., 2000; Perkins, 2002). There are many sub-populations that exist within a university, including students who live on campus (i.e., in residence), students who live off campus but not with family, and students who live with family. Depending on students' living accommodations, their university experience may differ substantially. Residence living is often associated with distinct socialization opportunities such as parties and drinking games (O'Malley & Johnson, 2002). A sense of community and family often exists among university students living together in a residence setting (Johnson et al., 2005). Knee and Neighbours (2002) claim that drinking alcohol is expected within this university community and members may feel pressure to consume alcohol in an effort to be part of the group's social activities. College students' living arrangements represent one environmental factor that has been shown to have a strong relationship with concomitant health-related behaviours, including binge drinking (e.g., Bachman, Wadsworth, O'Malley, Johnston, & Schulenberg, 1997; Wechsler et al., 2002; Weitzman, Nelson, & Wechsler, 2003). A study conducted by Boyd, McCabe, and d'Arcy (2004) surveyed over

2000 undergraduate students and found that living arrangements were highly predictive of binge drinking. Of the first year students surveyed, 66 percent of those living in residence reported that their drinking had increased from the previous year. The results of the Canadian Campus Survey (2004) were based on a sample of 6,282 students at 40 universities. In this study, Adlaf, Demers, and Gliksman (2005) found that based on the past 30 days, heavy frequent drinking occurred among 35.7 percent of students living on campus as opposed to 23.4 percent living off campus without family or 19.8 percent living off campus with family. Further, results of this study found that the most common hazardous consequence of heavy frequent drinking was unplanned sexual relations (i.e., 14.1 percent of those surveyed), and that students living on campus or off campus without family, are at increased risk of having unplanned sexual relations while drinking (Adlaf et al.). Unfortunately, Adlaf et al.'s operational definition of high-risk sexual behaviour did not include several key dimensions of high-risk sex (e.g., having multiple partners or sexual intercourse without taking proactive measures against pregnancy). The present study has targeted more specific definitions of high-risk sexual behaviour in hopes of further identifying the complex relationship between alcohol consumption and high-risk sexual behaviour. In addition, this study will build on the results of Adlaf et al. (2005) by further exploring the influence of student living arrangements on alcohol consumption by also exploring (a) the influence of student living arrangements on high-risk sexual behaviour and (b) the relationship between high-risk sexual behaviour and alcohol consumption and its association with student living arrangements.

Chapter 3

Methods

Participants

Fifty university students (i.e., 13 male and 37 female) from Memorial University of Newfoundland in St. John's, Newfoundland, Canada were solicited for this study. Participants ranged in age from 18 to 29 and were all students attending Memorial University for a minimum of three months. Questionnaire packages, including three specific questionnaires; (see Appendices A-C and below for a description of these measures), a letter of informed consent (Appendix D), and a ballot for a chance to win an iPod nano that was drawn for upon completion of participant recruitment, were compiled. The entire survey took approximately 10 minutes to complete. Participants were recruited in the following manner:

- a) Permission was obtained from various course instructors from the Faculties of Nursing and Education, and the Department of Psychology to enter their classes, provide a brief description of the study (See Appendix D), and provide interested students with the questionnaire packages described above. The questionnaire packages were left at the front of the classes for those students who were potentially interested in study participation. Those who chose to participate completed the confidential questionnaire package on their own time and returned it to one of the designated drop-off locations (i.e., Faculty of Education Mailroom ED1008, Faculty of Science Mailroom SC 1060, and the Faculty of Business general office BUS 2029).

- b) The researcher set up a table in Memorial's University Centre with signs displaying the topic and purpose of the study. Interested participants could approach the table at their own will and ask questions. Those who chose to participate took a questionnaire package to complete on their own time. Once completed, participants either dropped the questionnaire package in a box held at the table with the researcher or in one of the designated drop off locations listed in the questionnaire package.
- c) An e-mail advertising the study (Appendix F) was sent to a list of students compiled by the Department of Psychology who agreed to be contacted for any research projects throughout the semester. Interested participants contacted the researcher either by phone or e-mail. Following initial contact, a time and location were arranged to meet with the participants to provide them with a copy of the questionnaire package and to give them a brief description of the study. Participants solicited this way completed the questionnaire packages on their own time and returned the questionnaires, once completed, to one of the three drop off locations detailed above.

Measures

Demographic

A brief measure to obtain demographic information was administered.

Areas explored included: age, sex, ethnicity, year of study, field of study, living arrangements, relationship status (e.g., single, committed relationship, married), and

times of alcohol consumption (e.g., weeknights, weekends, nights prior to a day off from school).

Sexual Behaviour Questionnaire

Participants were asked to complete a sexual behaviour questionnaire that consisted of two parts. The first half of the questionnaire asked questions such as: (a) number of sexual partners, (b) frequency of risk discussion, protective measures used, (c) frequency of use of protective measures, (d) number of one night stands and casual partners, (e) and frequency of alcohol consumption prior to sexual acts. For the second half of the questionnaire the standard format of the 'sexual behaviour questionnaire', modelled after the work of Kelly et al. (1995), was used. Participants were asked to indicate the number of sexual partners, frequency of oral sex with and without a condom, vaginal sex with and without a condom, and anal sex with and without a condom for the previous 1-and 3-month time frames.

Alcohol Consumption Questionnaire

In order to measure alcohol consumption, participants were asked to complete the alcohol use disorders identification test (AUDIT). The AUDIT was developed over two decades by the World Health Organization and consists of 10 questions about recent alcohol use, alcohol dependence symptoms, and alcohol-related problems. It is scored on a four-point scale. The AUDIT has been found to provide an accurate measure of risk across gender, age, and cultures (Saunders, Aasland, Babor, de la Fuente, & Grant, 1993). The AUDIT was tested on a sample of 913 drinking patients, and was found to have 92 percent sensitivity and specificity of 94 percent (Saunders et al.). The results of several

studies have indicated high internal consistency for the AUDIT, suggesting that the AUDIT is measuring a single construct in a reliable fashion (Flemming, Barry, & Macdonald, 1991, Conigrave, Saunders, & Reznic, 1995, Sinclair, McRee, & Babor, 1992). A test-retest reliability study indicated high reliability ($r=.86$) in a sample consisting of non-hazardous drinkers, cocaine abusers, and alcoholics (Sinclair, McRee, & Babor, 1992).

Chapter 4

Results

Data Analysis Overview

This investigation utilized a descriptive, non-experimental, convenience sample survey design to explore potential relationships between high-risk sexual behaviour, alcohol consumption and university students' living arrangements. The goal of this study was to determine whether or not there was a significant relationship between where university students reside and their levels of both alcohol consumption and high-risk sexual behaviour. In addition to the overall goal of investigating the above mentioned potential relationship, this study was also designed to explore potential relationships between alcohol consumption and high-risk sexual behaviour in a general sense along with how these variables are potentially impacted by other demographic factors such as age, sex, and drinking pattern.

The data was scored according to the procedure discussed in chapter three, and was entered into an SPSS database for analysis. In order to explore the three way relationship between high-risk sexual behaviour, alcohol consumption, and students' living arrangements, a linear regression model was used to fit the data such that high-risk sexual behaviour was included as the single dependant variable with alcohol consumption and living arrangements set as regressor variables.

Due to limited sample size, further analyses were explored through descriptive statistics such as measures of central tendency and dispersion.

Demographic Analysis

Fifty students from Memorial University were surveyed using the questionnaires described in chapter two. There were a total of 37 (74 percent) females and 13 (26 percent) males surveyed. The mean age of participants surveyed was 22 ($\mu_{\text{male}} = 21.5$ years, $\mu_{\text{female}} = 22$ years). Participants varied in area of study, as well as in year of study, (see Table 2).

Table 2

Students' Faculties and Year of Study

<i>Faculty</i>	<i>Percentage</i>	<i>Year of Study</i>	<i>Percentage</i>
Arts	30	1 st	16
Science	28	2 nd	4
Nursing	10	3 rd	24
Education	2	4 th	28
Engineering	6	Prefer not to say	28
Business	10		
Social Work	6		
Other	8		

A breakdown of students' living arrangements can be found in Table 3.

Table 3

Students' Living Arrangements

Living Arrangement	Frequency	Percentage
Residence	4	8
Off Campus With Roommates	21	42
Off Campus Alone	3	6
Off Campus With Family	22	44

Participants were also asked about their current relationship status. A breakdown of their responses can be found in Table 4

Table 4

Relationship Status

Relationship Status	Frequency	Percentage
Married	1	2
Living with someone	4	8
Committed Relationship	16	32
Single	26	52
Other	2	4
Prefer not to say	1	2

As discussed in Chapter 1, participants' classification into low, hazardous and high-risk drinking categories and low and high-risk sexual behaviour categories were based on previous research and standardized procedures. Table 5 and Table 6 show a breakdown of the classification of participants into these categories.

Table 5

Breakdown of Levels of Alcohol Consumption

Alcohol Consumption	Frequency	Percentage
Low Risk	27	54
Hazardous Risk	17	34
High-Risk	6	12

Table 6

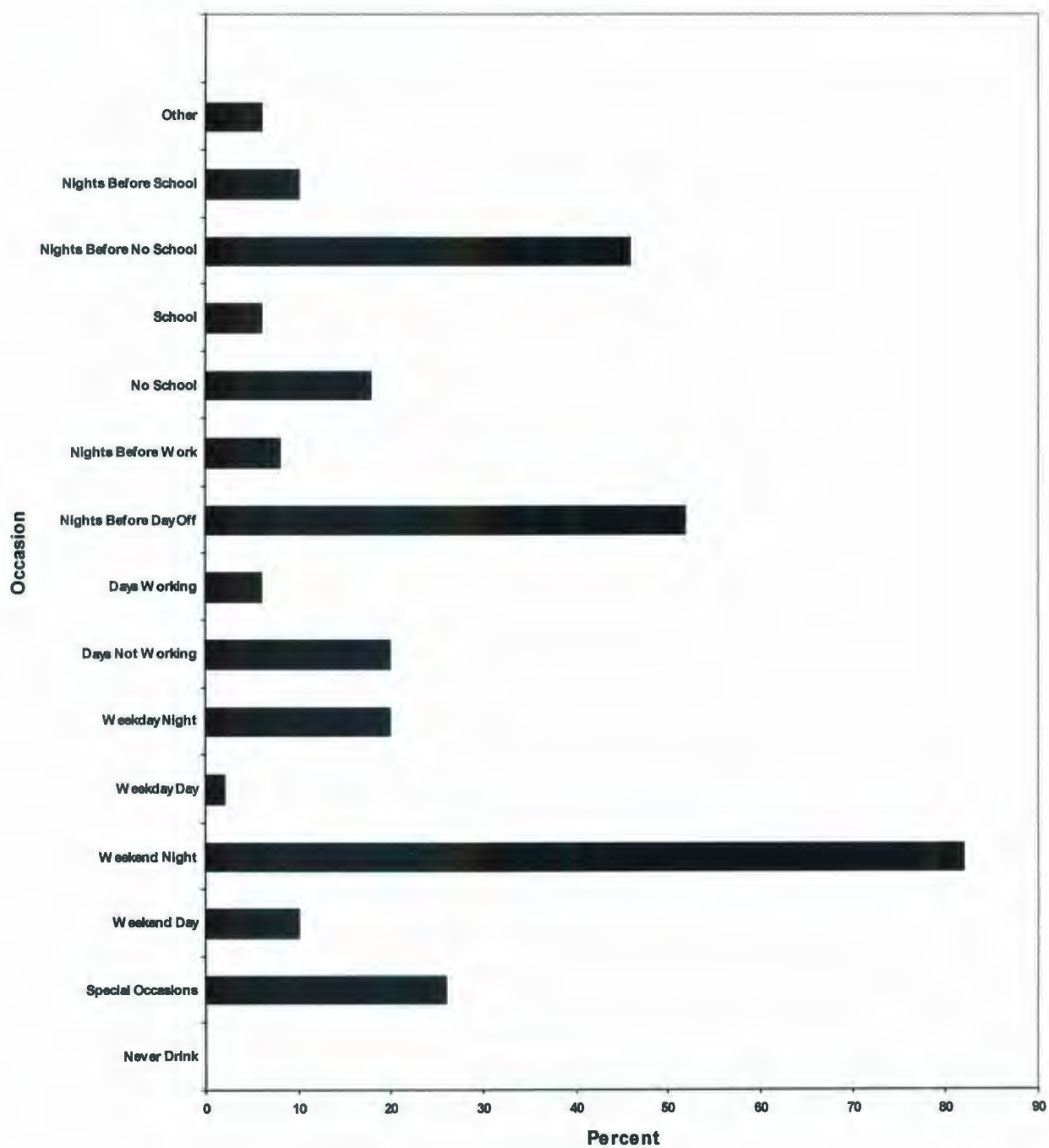
Breakdown of Levels of Sexual Behaviour

Sexual Behaviour	Frequency	Percentage
Abstinent	6	12
Low Risk	24	48
High-Risk	20	40

*Descriptive Analysis**Alcohol Consumption*

Participants were asked to select all occasions when they drink alcohol, thus highlighting drinking patterns amongst university students. Responses were analysed by defining multiple response sets in order to account for those having selected more than one occasion when they drink alcohol. Figure 1 displays an overview of students' drinking patterns.

Figure 1. Percentage of students who drink, based on occasion.



It can be seen from figure 1 that 100 percent of participants surveyed drink alcohol on some occasion in their lives. Further analysis of participants' drinking patterns highlighted occasions where drinking was most likely to occur. The most likely occasion to drink was weekend nights, with 82 percent of those surveyed responding that they drank alcohol at this time. Both nights before days off of school and nights before days off of work also ranked highly amongst occasions to drink, with 45 percent and 52 percent response rates amongst participants, respectively. The least likely occasion to drink was weekdays during the day. Only two percent of participants responded that they drink during this time.

Analysis of AUDIT scores revealed that the average score of participants fell just below the hazardous level of drinking ($\mu=7.84$). When broken down based on the biological sex variable it was found that the average AUDIT score for males places them in the hazardous drinking range ($\mu=8.15$) and females fall into the high end of the low risk category ($\mu=7.73$). Analysis of alcohol consumption based on living arrangement is displayed in Table 7.

Table 7

Frequency of Alcohol Consumption based on Living Arrangement

Living Arrangement	n	Low		Hazardous		High	
		Frequency	Percentage	Frequency	Percentage	Frequency	Percentage
MUN Campus	4	1	25	3	75	0	0
Off Campus with Roommates	21	7	33	9	43	5	24
Off Campus Alone	3	2	67	1	33	0	0
Off Campus with Family	22	17	77	4	18	1	5

It can be seen from Table 7 that participants living off campus alone and off campus with family have a higher percentage of low risk drinking. It can also be seen that of the four participants living in residence at Memorial University three were classified as hazardous drinkers and one was a low risk drinker. Those participants living off campus with roommates demonstrated similar trends with 43 percent of participants being classified as hazardous drinkers, 23 percent classified as high-risk drinkers, and 33 percent classified as low risk drinkers. The opposite trend is seen with participants who live off campus alone and with family. It was found that students in these two categories had higher rates of low risk drinking than hazardous or high-risk. A one way ANOVA was used to test the difference of AUDIT scores based on students' living arrangements. AUDIT scores did not significantly differ based on living arrangement $F(3, 46) = 2.19, p = .10$.

Sexual Behaviour

Numerous variables were examined to obtain a picture of university students' sexual behaviour. Overall, it was found that 40 percent of participants were classified as partaking in high-risk sexual behaviour, and 48 percent were classified as demonstrating low risk sexual behaviour. Analysis by biological sex can be seen in Table 8.

Table 8

Sexual Behaviour Based on Biological Sex

Sexual Behaviour	Percentage	
	Male	Female
Low	38	51
High	54	35

It can be seen that males had a higher tendency to show high-risk sexual behaviour in comparison to females. Also, it should be noted that five of the 37 females and one of the 13 males reported abstinence.

Table 9 provides a summary of select variables that highlight university students' sexual behaviour.

Table 9

Descriptive Breakdown of Sexual Behaviour

Sexual Experience	n	μ	Std. Deviation
Lifetime Partners	36	6	6.58
Casual Sex Partners	43	2	3.10
One night Stands	44	1	1.63

A breakdown of student's sexual behaviour based on living arrangement can be seen in Table 10.

Table 10

Classification of Students Sexual Behaviour Based on Living Arrangement.

<i>Living Arrangement</i>	<i>N</i>	<i>Low-Risk</i>		<i>High-Risk</i>	
		Frequency	Percentage	Frequency	Percentage
MUN Residence	2	1	50	1	50
Off campus with roommates	21	10	48	11	52
Off campus alone	3	1	33	2	67
Off campus with family	18	6	33	12	67

Similar to alcohol consumption, students living off campus with family tend to demonstrate lower levels of sexual risk behaviour. Students living off campus with roommates show little difference in their sexual behaviour. The numbers of students living on campus and off campus alone are quite small and therefore limit any interpretation.

An exploration of condom usage revealed that overall 36 percent of respondents reported failure to use condoms during the last month. Further, 35 percent of those classified as single failed to use condoms during the past month. Discussion of risk factors as an indication of high-risk sexual behaviour was also explored. It was found that on a scale of one to five, with one being "I never discuss risk factors prior to intercourse" and five being "I always discuss risk factors prior to intercourse", participants reported an average of three, $\mu = 2.93$, $SD = 1.12$, which corresponded with "I occasionally discuss risk factors prior to engaging in intercourse."

Analysis of Relationship between High-Risk Sexual Behaviour, Alcohol Consumption, and Student Living Arrangement

Standard linear regression analysis was performed between high-risk sexual behaviour as the dependent variable and alcohol consumption and living arrangements (i.e., MUN residence, off campus with roommates, off campus alone, and off campus with family) as independent variables. Table 11 and Table 12 displays the correlations between the variables explored in the regression analysis, the unstandardized regression coefficients (B), the standardized regression coefficients (β), R , R^2 , and adjusted R^2 . R for regression was not significantly different from zero, $F(4, 39) = .78, p > .001$, with R^2 at .07.

Table 11

Correlation of Regression Variables

Variables	Risk Beh	Alcohol	Residence	Roommates Alone	
Alcohol	.21				
Residence	-.20	-.11			
Roommates	-.13	-.36	-.21		
Alone	-.12	.12	-.59	-.27	
Family	.20	.34	-.18	-.80	-.23

Table 12

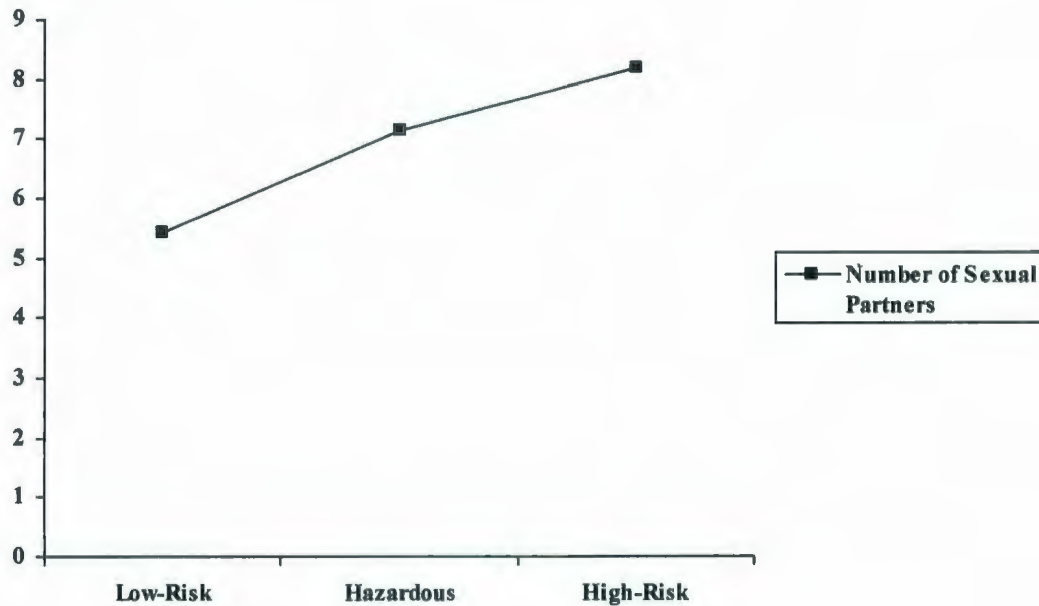
Standard Multiple Regression of Alcohol Consumption and Living Arrangements on High-Risk Sexual Behaviour

	μ	SD	B	β	R^2	Adj R^2	R
Risk Beh	1.45	.50			.07	-.02	.27
Alcohol	1.64	.72	.13	.18			
Residence	.95	.21	.04	.02			
Family	.59	.50.	.12	.12			
Alone	.93	.26	.22	-.11			

Note: The variable Off Campus with Roommates was excluded from the regression analysis.

Although significance was not found for the main hypothesis, trends can be seen within the data. Figure 2 shows the relationship between number of sexual partners and alcohol consumption.

Figure 2. Mean number of lifetime sexual partners for three levels of alcohol consumption.



It can be seen that as number of sexual partners increases so does the classification of alcohol consumption. Those classified as high-risk drinkers have a mean number of lifetime partners averaging at 8.20, whereas those classified as low risk drinkers have on average 5.44 sexual partners. Further, when condom usage was analysed, it was seen that students classified as hazardous drinkers showed the highest frequency of failing to use a condom in the past month, and students classified as low-risk drinkers showed the highest frequency of condom usage. A breakdown of condom usage and alcohol consumption can be seen in Table 13.

Table 13

Frequency of Students Using Condoms Based on Level of Alcohol Consumption

<i>Alcohol Consumption</i>	<i>Total</i>	<i>Frequency of students who always used a condom in the past month</i>	<i>Frequency of students who never used a condom in the past month.</i>
Low-Risk Drinking	20	11	9
Hazardous Drinking	15	4	11
High-Risk Drinking	6	3	3

Finally, as discussed in both sections on alcohol consumption and high-risk sexual behaviour, trends can be seen for both risk behaviours based on living arrangement. Although significance could not be determined, it was seen that with both risk behaviours, students living off campus with roommates tended to demonstrate higher levels of risk behaviours, and students living off campus with family tended to demonstrate lower levels of both behaviours.

Chapter 5

Discussion

This study sought to explore the relationship between high-risk sexual behaviour, alcohol consumption and university students' living arrangements. With the infinite list of risks and potential dangers associated with both high-risk sexual behaviour and alcohol consumption it is of critical importance that we develop a better understanding of the patterns and reasons university students are partaking in both risk behaviours. The current study hoped to contribute to the literature base in this area by exploring sub populations within a university setting that might provide further insight into the complex world of high-risk sexual behaviour and alcohol consumption. A better understanding of students' behaviour could ultimately lead to programming to educate both students and university faculty/staff in hopes of providing a safer and more rewarding university experience.

In addition to exploring the three way relationship between high-risk sexual behaviour, alcohol consumption and students' living relationships, both risk factors were explored individually in order to get a sense of their prominence and influence within a university setting. Individual exploration of these variables also provided critical information to be used in order to educate the university population on ways of possibly reducing such behaviours and creating a safer, healthier environment. By providing insight into such areas as: drinking patterns, condom use, and discussion of risk factors with new partners, we can hope to develop educational tools to ultimately aide in building a safer university environment. The implications of the individual exploration of variables are discussed in the next sections.

Alcohol Consumption

The perception of university life often comes with images of wild parties and excessive alcohol use. University culture has commonly been associated with binge drinking to the point where heavy drinking is viewed as normal in a university setting (Keeling, 2002; Kropp, Lavack, Silvera, & Gabler, 2004; & Weschler et al., 2000). Most research shows that rates of drinking amongst university students exceeds 90 percent (Spence & Gauvin, 1996; Svenson et al., 1994).

Due to the magnitude of research that highlights high drinking rates amongst university students, it was predicted that similar rates would be found within the current sample. When alcohol consumption was explored in the current study, it was found that 100 percent of participants surveyed consumed alcohol. When drinking patterns were further explored, it was found that 82 percent of those surveyed consumed alcohol on weekend nights, which fits with previous research that shows that drinking is most likely to occur on the weekends (Hussong, Hicks, Levy, & Curran, 2001). Further analysis of students' alcohol consumption indicated that 34 percent of university students sampled were classified as hazardous drinkers, meaning they were taking part in harmful drinking to the point that might indicate alcohol dependence (Babor et al., 2001). A more alarming statistic was that 12 percent of the students surveyed were classified as high-risk drinkers. Such a classification is likely to indicate alcohol dependence. Although there are no direct comparisons that can be made to existing literature, Adlaf's et al.(2005) definition of heavy-frequent drinking relates most closely to the definition of the current

study's definition of high-risk drinking. The Canadian Campus Study found that 16.1 percent of participants surveyed were classified as heavy frequent drinkers. Knight et al. (2002), using a semi-structured assessment for the genetics of alcoholism, found that 37 percent of college students reached the diagnostic threshold for abuse or dependence. Although the percentage of high-risk drinkers in the current study is not quite so severe, it does not erase the detrimental implications of such results.

Alcohol classification was explored with respect to living arrangements in order to better understand drinking habits amongst different sub populations of university students. Although significance was not found, it could be seen that students living off campus with roommates or on the university campus had higher average scores on the AUDIT than did those students living off campus alone or with family. This is consistent with findings in the current literature that show that students living on campus generally show higher rates of alcohol consumption than those living off campus alone or with family (Adalf et al., 2005; Dawson, Grant, Stinson & Chou, 2004). Social control theory has been used to show the importance of family support and monitoring in determining alcohol consumption (Miller, Benson, & Galbraith, 2001; Siebenbruner, Zimmer-Gembeck, & Egeland, 2005). Further, the theory of planned behaviour has been used to show the influence of peers on one's behaviour (Larimer, Turner, Mallett, & Geisner, 2004; Perkins, 2003). Thus, it follows that individuals living with roommates/in residence may be influenced by their peers' behaviours and may be more likely to participate in behaviours that they feel are important to their peers. As well, those students living at home are further removed from their peers and are therefore potentially more influenced

by the attachments they have with their family, and accordingly may be more likely to follow their parents' norms.

Sexual Behaviour

High-risk sexual behaviour is a concern amongst any population as it can lead to severe health problems, including death. Past Canadian research found that in 2003, between 21.5 percent and 43.6 percent of 15- to 24-year-olds in Canada reported not using a condom the last time they had sexual intercourse. Results such as this are alarming as according to a recent UNAIDS report, an estimated 11.8 million people aged 15 to 24 years are living with HIV/AIDS, and half of all new infections worldwide are occurring among young people (UNAIDS, 2003).

The present study explored the trends of high-risk sexual behaviour in a sample of university students in Newfoundland and Labrador. Of the population sampled, 88 percent of participants reported having had sexual intercourse in their lifetime. This is consistent with previous Canadian research that reports 82 percent of young Canadians between the ages of 18 and 24 have had sexual intercourse in their lifetime (Fisher & Boroditsky, 2000). The current study had an age range between 18 to 29 years, which may explain why the percentage of participants having had sexual intercourse was somewhat higher in the current study.

As previously discussed, defining high-risk sexual behaviour can be a challenge. There are currently a wide variety of definitions that exist. The present study attempted to define high-risk sexual behaviour in simple and concise terms in order to best capture the behaviour of the population sampled. Thus, a 'high-risk' classification was based on the

following definition: having had two or more sexual partners in the past three months and having not always used a condom and/or having had 5 or more lifetime sexual partners. From this definition, it was found that 40 percent of students surveyed were classified as demonstrating high-risk sexual behaviour. An exploration of condom use alone revealed that 36 percent of those surveyed failed to use a condom on any occasion in the last month. It does need to be acknowledged that those participants reporting being in a committed relationship (i.e., 21 participants in total reported being married or in a committed relationship) may have influenced this statistic, as such people generally may not use protection, such as a condom, when they are only partaking in sexual intercourse with one partner. However, the same analysis was performed on those who reported themselves as being single, and it was found that 35 percent failed to use a condom on any occasion in the past month. Although these results indicate that students at this particular university show higher rates of condom usage than those surveyed in the American College Health Association survey (2007), where amongst a sample of almost 24,000 students, 46 percent failed to use a condom during their last act of vaginal sex, the results of the current study are still concerning.

When high-risk sexual behaviour was explored based on biological sex it was found that a higher percentage of males were classified as demonstrating high-risk sexual behaviour. Over half of the males surveyed met the definition of high-risk sexual behaviour. Current research also indicates that males, in general, are much more prone to risky sexual behaviour than females (Mladenovic, Donev, & Spasovski, 2009; World Health Organization, 2004). Gender perspectives shape the way adolescents view

sexuality and play an important role in sexual behaviour and risk-taking attitude (Mladenovic et al.). In our society boys and girls often receive different messages about the behaviour that is expected of them. Indeed, it is common for different messages to be transmitted. For example, messages that certain behaviour is acceptable for boys but not for girls, and vice versa (Joshi, 2005). Based on such findings there is a growing recognition that adolescents and young people should be target groups for policies to eliminate gender inequality (The United Nations General Assembly).

Alcohol Consumption, High-Risk Sexual Behaviour and Living Arrangements

The relationship between alcohol consumption and high-risk sexual behaviour amongst university students is quite common in current literature (Abbey et al., 2007; Cooper, 2002; George & Stoner, 2000; MacDonald et al., 2000; Perkins, 2002). A little less common, however, is research that explores how students' living arrangement influences students' behaviour in terms of both their alcohol consumption and their high-risk sexual behaviour. The Canadian Campus Survey, conducted by Adlaf et al. (2005) explored students' drinking habits based on living arrangement and found that students' living on campus had higher rates of heavy frequent drinking in comparison to both students living off campus on their own as well as those living off campus with family. Further results of this study found that students living on campus or off campus without family are at increased risk of having unplanned sexual relations while drinking (Adlaf et al. 2005). A New Zealand study also explored the relationship between alcohol consumption, high-risk sexual behaviour, and living arrangements and found that students in residential halls or house-sharing environments appeared to be more at risk

for experiencing an alcohol-related risky sexual behaviour as a result of their own drinking (Cashell-Smith, Connor, & Kypri, 2007). The present study hoped to explore this relationship using more specific definitions of both high-risk sexual behaviour and living arrangements in order to provide a clearer picture of the relationship and how it presents itself in Newfoundland and Labrador. Unfortunately, an analysis of this three way relationship did not provide any significant results using the current sample.

Although significance was not found, trends did exist that fit with current research in this area. It was found that the percentage of students classified as both hazardous and high-risk drinkers were higher for students living on campus and those living off campus with roommates than those living off campus alone or with family. Further, it can be seen that participants classified as high-risk drinkers have the highest average number of sexual partners followed by those classified as hazardous risk drinkers. This is consistent with past research showing a significant relationship between alcohol consumption and high-risk sexual behaviour (Abbey et al., 2007; Cooper, 2002; George & Stoner, 2000; MacDonald et al., 2000; Perkins, 2002). Also, an exploration of condom usage based on alcohol consumption demonstrated similar results. Students classified as hazardous drinkers demonstrated the highest frequency of failure to use a condom in the past month, whereas students classified as low-risk drinkers showed the highest frequency of always using condoms during the past month.

Study Limitations

This section highlights the limitations of this study and addresses possible improvements for future research in this field.

The most significant limitation of this study was the small sample size collected. Because of this, caution should be taken with interpretation and generalization of these results. An attempt was made to recruit as many students as possible; however, given the nature of the study measures it was difficult to obtain larger participant numbers. The final number of participants in this study was 50. With over 200 surveys distributed, such a low return rate raises some concern. The topic of high-risk sexual behaviour is a sensitive one, which may have caused discomfort for some potential participants, and therefore may have contributed to the low response rate. Perhaps a less direct and overt questionnaire to assess high-risk sexual behaviour could be explored in the future. However, this would also result in study limitations as such a measure would not contain the depth of this highly complex variable as was captured in the current study. Further, of the 50 participants, six were abstinent, leaving 44 participants eligible for any analysis involving participant's high-risk sexual behaviour. Such a limited number of participants placed restrictions on the level of statistical analysis that could be carried out on the data. In addition to this, males were underrepresented in this sample. Perhaps males were underrepresented because recruitment took place mainly in social science courses and nursing courses, which may suggest that this biological sex breakdown is representative of the actual population. It is possible that if students were recruited from both social science courses and physical science courses (e.g., Chemistry, Biology, and Computer Science) a better representation would exist.

A second limitation to this study stemmed from the number of participants who were in committed/married relationships. A total of 21 out of 50 participants (i.e., 42

percent) reported being in such relationships. Without having a research design that explored behaviours such as cheating and/or alternative lifestyles, a true representation of high-risk sexual behaviour was difficult to achieve as the majority of this 42 percent were classified as low-risk without knowing all the pertinent information concerning their sexual behaviour.

A final concern with this study is that the time period in which participants were to report about their sexual activity was restricted to three months. This was useful in that it made it easier for participants to recall exactly what their sexual behaviour had been; however, a longer time period (e.g., 12 months) may have provided a more accurate picture of participants' sexual behaviour. Perhaps a solution would be to question participants about both their three month and 12 month history as opposed to their one and three month history.

Directions for Future Research

This section notes suggestions to consider for the current study as well as possible directions for future research in this field.

To improve this study, an increase in sample size is required. An increase in sample size would result in more accurate and consistent findings of both high-risk sexual behaviour and alcohol consumption in the university population. Further, it would provide a more accurate representation of students' living arrangements and how they influence behaviour. In general, a larger sample size would improve the sample's representative nature and increase the generalizability of the research. This would also

increase statistical power and allow for higher level and more powerful statistics to be carried out.

Expanding data collection to other universities nation wide or even in the Atlantic region would also assist in developing a more accurate representation of the high-risk sexual behaviour and alcohol consumption in university students. It would also assist with the generalizability of the findings.

One option for future research may be to limit the sample to participants who classify themselves as single as opposed to a general sample that includes those in a committed relationship or who are married. Targeting a specific sample such as this could provide a comparison group that might assist in obtaining a more accurate picture of high-risk sexual behaviour. Another alternative would be to include those participants in committed/married relationships while incorporating such factors as cheating and open/alternative lifestyles into the research design in order to fully obtain a clear picture of one's behaviour.

As mentioned previously, a possible cause of the low response rate was the nature of the topic and how it may make some uncomfortable and thus unwilling to participate. Future research would benefit from exploring this concern and possibly developing a questionnaire that approaches the topic in a less direct manner that may not cause possible discomfort for those participating.

Finally, as discussed previously, high-risk behaviour is a variable with multiple definitions. There are many factors that could possibly influence whether or not one's behaviour constitutes high-risk. Although the present study explored many dimensions of

high-risk sexual behaviour, the final operational definition of high-risk sexual behaviour was limited to condom use and number of sexual partners in hopes of capturing the widest picture of high-risk sexual behaviour possible. Although such a definition has been used in a plethora of current research, it may be of benefit to future research to explore other factors when defining high-risk sexual behaviour. Discussion risk factors with new partners or pregnancy prevention measures are only two possible factors that may be incorporated into an operational definition in order to provide a more in-depth and precise definition of high-risk sexual behaviour, and thus provide a clearer and more accurate representation of such behaviour amongst this population.

It is important to note that future research needs to be conducted in order to replicate these findings and more importantly, future research should continue to investigate the potential relationships discussed here so that a better understanding of said relationships can be obtained. The work carried out in this investigation promotes the research of both high-risk sexual behaviour and alcohol consumption in hopes of more fully understanding this complex relationship and how it influences not only university students but the overall population. A more in depth understanding of this relationship will further assist in developing policies and programs in order to reduce some of the detrimental consequences that result from these behaviours. Continuing to look specifically at sub populations (i.e. living arrangements) could further assist in developing and implementing such programs and policies by providing further insight into the causes and influences of such behaviours. Finally, this work, along with future research, could be used to educate the university community about the complex

relationship that exists between alcohol consumption and high-risk sexual behaviour as well as the repercussions that follow, which may ultimately lead to a reduction in the unnecessary fatal consequences of these behaviours.

Conclusion

The results of this investigation support several of the findings of existing research on high-risk sexual behaviour and alcohol consumption within a university population. Both high-risk sexual behaviour and alcohol consumption are associated with detrimental effects for students and the general population and should continue to serve as a platform for future research. The results of the current study, in conjunction with existing research in this field, provide evidence that behaviours such as high-risk sexual behaviour and alcohol consumption are occurring among our university students and this necessitates a need for further prevention and intervention initiatives by psychologists, educators, as well as university leaders.

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APPENDIX A

Demographic Questionnaire

1. What is your age? _____
2. What is your sex? _____
3. What is your primary language? _____
4. How would you classify yourself?
 - a.) Caucasian/White _____
 - b.) African American _____
 - c.) Asian _____
 - d.) Indigenous or Aboriginal _____
 - e.) Hispanic _____
 - f.) Multiracial _____
 - g.) Other _____
 - h.) Would prefer not to say _____
5. During the academic school year, where do you live? (Check the option that most applies)
 - a.) Memorial University Residences _____
 - b.) Off campus with roommates _____
 - c.) Off campus alone _____
 - d.) Off campus with family _____
 - e.) Other _____
6. What year of university are you in?
 - a.) 1st year _____
 - b.) 2nd year _____
 - c.) 3rd year _____
 - d.) 4th year _____
 - e.) other _____
7. What is your major? (Please write undecided if you are undecided) _____
8. What is your current relationship status?
 - a.) Married _____
 - b.) Single _____

- c.) Divorced _____
- d.) Separated _____
- e.) Living with someone _____
- f.) Committed relationship _____
- g.) Other _____
- h.) Would prefer not to say _____

9. On average, when are you most likely to consume alcohol? (Please check all that apply)

- a.) I don't ever drink alcohol _____
- b.) I only drink alcohol on very special occasions _____
- c.) Weekends during the day _____
- d.) Weekends during the night _____
- e.) Weekdays during the day _____
- f.) Weekdays during the night _____
- g.) On days I am not working _____
- h.) On days I am working _____
- i.) On nights preceding days off _____
- j.) On nights preceding work days _____
- k.) On days I am not at school _____
- l.) On days I am at school _____
- m.) On nights preceding days I am not in school _____
- n.) On nights preceding days I am in school _____
- o.) Other _____

APPENDIX B

Sexual Behaviour Questionnaire

The following questionnaire is about your sexual behaviour. By sex, we mean vaginal, oral or anal sex.

1. Have you ever had sex?
 - a.) Yes
 - b.) No
 - c.) Don't know
 - d.) Prefer not to say
2. If you answered "No" to question one please move on to the next questionnaire.
3. In total how many people have you had sex with?
 - a.) Number of people _____
 - b.) Don't know
 - c.) Prefer not to say.
4. On a scale of 1-5, with:
 - '1' being never
 - '2' being rarely
 - '3' being occasionally
 - '4' being almost always
 - '5' being always

Based on the above scale, how often do you discuss risk factors with your partner prior to engaging in sexual intercourse? _____

5. Select any of the following birth control measures you or your partner(s) use to prevent pregnancy:
 - a.) Birth Control Pill
 - b.) Contraceptive Patch
 - c.) Cervical Cap
 - d.) Depo-Provera
 - e.) Diaphragm
 - f.) Intrauterine Device (IUD)
 - g.) Spermicides
 - h.) Vaginal Contraceptive Ring
 - i.) Other
 - j.) Don't know.

6. On a scale of 1-5, with:

- '1' being never
- '2' being rarely
- '3' being occasionally
- '4' being almost always
- '5' being always

Based on the above scale, how often do you use the above indicated birth control measures? _____

7. Over your lifetime, how many unknown sex partners have you had? _____

8. Over the last three months, how many unknown sex partners have you had? _____

9. Over your lifetime, how many casual sex partners have you had? _____

10. Over the last three months, how many unknown sex partners have you had? _____

11. On a scale of 1-5, with:

- '1' being never
- '2' being rarely
- '3' being occasionally
- '4' being almost always
- '5' being always

Based on the above scale, how often would you say you consume alcohol prior to engaging in sex? _____

12. On a scale of 1-5, with:

- '1' being never
- '2' being rarely
- '3' being occasionally
- '4' being almost always
- '5' being always

Based on the above scale, how often would you say you engage in sexual behaviour while under the influence of alcohol? _____

For each item below, write a number in the space for your best estimate. If the situation did not occur, write a zero (0) in the blank. Please do not leave spaces empty. Please answer these questions honestly to the best of your knowledge.

13. Number of male sex partners past month _____
14. Number of male sex partners past 3 months _____
15. Number of female sex partners past month _____
16. Number of female sex partners past 3 months _____
17. Number of times I had vaginal intercourse with latex condoms:
 - Past month _____
 - Past 3 months _____
18. Number of times I had vaginal intercourse without latex condoms:
 - Past month _____
 - Past 3 months _____
19. Number of times I had oral sex with a man with a condom:
 - Past month _____
 - Past 3 months _____
20. Number of times I had oral sex with a man without a condom:
 - Past month _____
 - Past 3 months _____
21. Number of times I had anal intercourse with latex condoms:
 - Past month _____
 - Past 3 months _____
22. Number of times I had anal intercourse without latex condoms:
 - Past month _____
 - Past 3 months _____

APPENDIX C

AUDIT questionnaire: screen for alcohol misuse

Please circle the answer that is correct for you

1. How often do you have a drink containing alcohol?
 - a.) Never
 - b.) Monthly or less
 - c.) 2-4 times a month
 - d.) 2-3 times a week
 - e.) 4 or more times a week
2. How many standard drinks containing alcohol do you have on a typical day when drinking?
 - a.) 1 or 2
 - b.) 3 or 4
 - c.) 5 or 6
 - d.) 7 to 9
 - e.) 10 or more
3. How often do you have six or more drinks on one occasion?
 - a.) Never
 - b.) Less than monthly
 - c.) Monthly
 - d.) Weekly
 - e.) Daily or almost daily
4. During the past year, how often have you found that you were not able to stop drinking once you had started?
 - a.) Never
 - b.) Less than monthly
 - c.) Monthly
 - d.) Weekly
 - e.) Daily or almost daily
5. During the past year, how often have you failed to do what was normally expected of you because of drinking?
 - a.) Never
 - b.) Less than monthly
 - c.) Monthly
 - d.) Weekly
 - e.) Daily or almost daily
6. During the past year, how often have you needed a drink in the morning to get yourself going after a heavy drinking session?
 - a.) Never
 - b.) Less than monthly
 - c.) Monthly

- d.) Weekly
 - e.) Daily or almost daily
7. During the past year, how often have you had a feeling of guilt or remorse after drinking?
- a.) Never
 - b.) Less than monthly
 - c.) Monthly
 - d.) Weekly
 - e.) Daily or almost daily
8. During the past year, have you been unable to remember what happened the night before because you had been drinking?
- a.) Never
 - b.) Less than monthly
 - c.) Monthly
 - d.) Weekly
 - e.) Daily or almost daily
9. Have you or someone else been injured as a result of your drinking?
- a.) No
 - b.) Yes, but not in the past year
 - c.) Yes, during the past year
10. Has a relative or friend, doctor or other health worker been concerned about your drinking or suggested you cut down?
- a.) No
 - b.) Yes, but not in the past year
 - c.) Yes, during the past year

Saunders JB, Aasland OG, Babor TF *et al.* Development of the alcohol use disorders identification test (AUDIT): WHO collaborative project on early detection of persons with harmful alcohol consumption — II. *Addiction* 1993, **88**: 791–803.

APPENDIX D

Research Project Title: Alcohol Consumption and High-Risk Sexual Behaviour in a University Population.

Investigators: Nicole M. Masters, Gregory E. Harris

The purpose of this study is to explore the relationship between alcohol consumption and sexual behaviour amongst university students. Specifically we want to explore the influence of student living arrangements on both alcohol consumption and sexual behaviour.

The study will include: a.) reading the informed consent form, b.) completing the questionnaire package, and c.) returning the questionnaires to the Faculty of Education mailroom, which is located on the bottom floor of the Education Building (room #1008), the Faculty of Science mailroom located on the bottom floor of the Science Building (room # 1060), or the Faculty of Business General Office located on the second floor of the Business Building (room # 2029).

All of your responses on the questionnaires will be completely confidential. The questionnaires will take approximately 15 to complete and involve questions related to: your use or avoidance of alcohol and past and current sexual behaviour. It is important for you to know that your participation is completely voluntary, and if at any time during the completion of these questionnaires you feel uncomfortable, you are free to stop.

Strict confidentiality will be maintained with the questionnaires. There will be no identifying information on the questionnaires. No one, including the researchers will be able to link your data with you personally. All data (e.g. questionnaires will be kept in a locked file cabinet in Dr. Gregory Harris' office at Memorial University and then shredded after five years.

For those interested, the results of the study will be made available to any individual upon request. However, there will be no information reported publicly that could be linked to you. Strict confidentiality will be maintained. At this time, there are no foreseen benefits for you personally participating in this study. There are no foreseen costs or negative consequences to your participation in this study.

Your returning the completed questionnaires to either the Faculty of Education mailroom, the Faculty of Science mailroom, or the Business General Office indicates that you have read and understood to your satisfaction the information regarding participation in the research project and agree to participate as a participant. In no way does this waive your legal rights nor release the investigators, or involved institutions from their legal and professional responsibilities. You are free to withdraw from the study at any time. Your continued participation should be as informed as your initial consent, so you should feel free to ask for clarification or information throughout your participation. Your agreement to participate also provides permission for the researchers to use data in presentations,

published articles, and in any other future publications. If you have further questions concerning matters related to this research, please contact:

Nicole M Masters (709) 687-6739, nicolemm81@gmail.com

Dr. Greg Harris (709) 737-6925, gharris@mun.ca

This study has been reviewed and approved by the Interdisciplinary Committee on Ethics in Human Research at Memorial University. If you have ethical concerns about the research (such as the way you have been treated or your rights as a participant), you may contact the Chairperson of the ICEHR at icehr@mun.ca or by telephone at 737-8368.

This consent form, a copy of which has been given to you, is only part of the process of informed consent. It should give you the basic idea of what this research project is about and what your participation will involve. If you would like more detail about something mentioned here, or information not included here, you should feel free to ask. Please take the time to carefully read this form and any accompanying information.

A copy of this consent form has been given to you to keep for your records and reference.

APPENDIX E

Hi, my name is Nicole Masters. I am a graduate student in the Counselling Psychology program here at Memorial University. As part of this program I was given the option to complete a research thesis. I decided to look at the relationship between alcohol consumption and high-risk sexual behaviour amongst university students, who have been university students for at least three months. Specifically I want to explore the influence of student living arrangements on both alcohol consumption and high-risk sexual behaviour. I am interested in whether students' sexual behaviour and alcohol consumption vary depending on whether they live on campus, off campus (alone or with roommates), or if they live at home with family.

I am looking for volunteer participants to complete a confidential questionnaire package. The package will include an informed consent form and three questionnaires. The questionnaires will take approximately 15 minutes to complete and involve questions related to: your average alcohol consumption, your past and current sexual behaviour, and various demographic questions such as: where you are currently living, your age, and your marital status. It is important for you to know that your participation is completely voluntary, and if at any time during the completion of these questionnaires you feel uncomfortable, you are free to stop. Also, no one, including myself or my university supervisor (Dr. Harris), will know how you responded to the questionnaire questions. They are completely confidential.

Anybody who chooses to participate will have the chance to have their names entered into a draw to win a new IPOD Nano (8GB). Even if you choose not to participate, after looking through the questionnaires, you can still have your name entered into the draw. Strict confidentiality will be maintained with the questionnaires. There will be no identifying information on the questionnaires. No one, including the researchers will be able to link your data with you personally.

I will leave the questionnaire packages at the front of the classroom. For those of you who choose to participate you can drop the completed questionnaires off at one of the following locations: The Faculty of Education mailroom located on the bottom floor of the Education Building (room # 1008), the Faculty of Science mailroom located on the bottom floor of the Science Building (room # 1060), or the Faculty of Business General Office located on the second floor of the Business Building (room # 2029).

Thank you for your time and thank you to all who choose to participate in the study.

APPENDIX F

Good day,

My name is Nicole Masters. I am a graduate student in the Counselling Psychology program here at Memorial University. As part of this program I was given the option to complete a research thesis. I decided to look at the relationship between alcohol consumption and high-risk sexual behaviour amongst university students, who have been university students for at least three months. Specifically I want to explore the influence of student living arrangements on both alcohol consumption and high-risk sexual behaviour. I am interested in whether students' sexual behaviour and alcohol consumption vary depending on whether they live on campus, off campus (alone or with roommates), or if they live at home with family.

I am looking for volunteer participants to complete a confidential questionnaire package. The package will include an informed consent form and three questionnaires. The questionnaires will take approximately 15 minutes to complete and involve questions related to: your average alcohol consumption, your past and current sexual behaviour, and various demographic questions such as: where you are currently living, your age, and your marital status. It is important for you to know that your participation is completely voluntary, and if at any time during the completion of these questionnaires you feel uncomfortable, you are free to stop. Also, no one, including myself or my university supervisor (Dr. Harris), will know how you responded to the questionnaire questions. They are completely confidential.

Anybody who chooses to participate will have the chance to have their names entered into a draw to win a new IPOD Nano (8GB). Even if you choose not to participate, after looking through the questionnaires, you can still have your name entered into the draw. Strict confidentiality will be maintained with the questionnaires. There will be no identifying information on the questionnaires. No one, including the researchers will be able to link your data with you personally.

Anyone interested in participating in this study can contact me at:
nicolemm81@yahoo.com.

Thank you for your time and thank you to all who choose to participate in the study.

