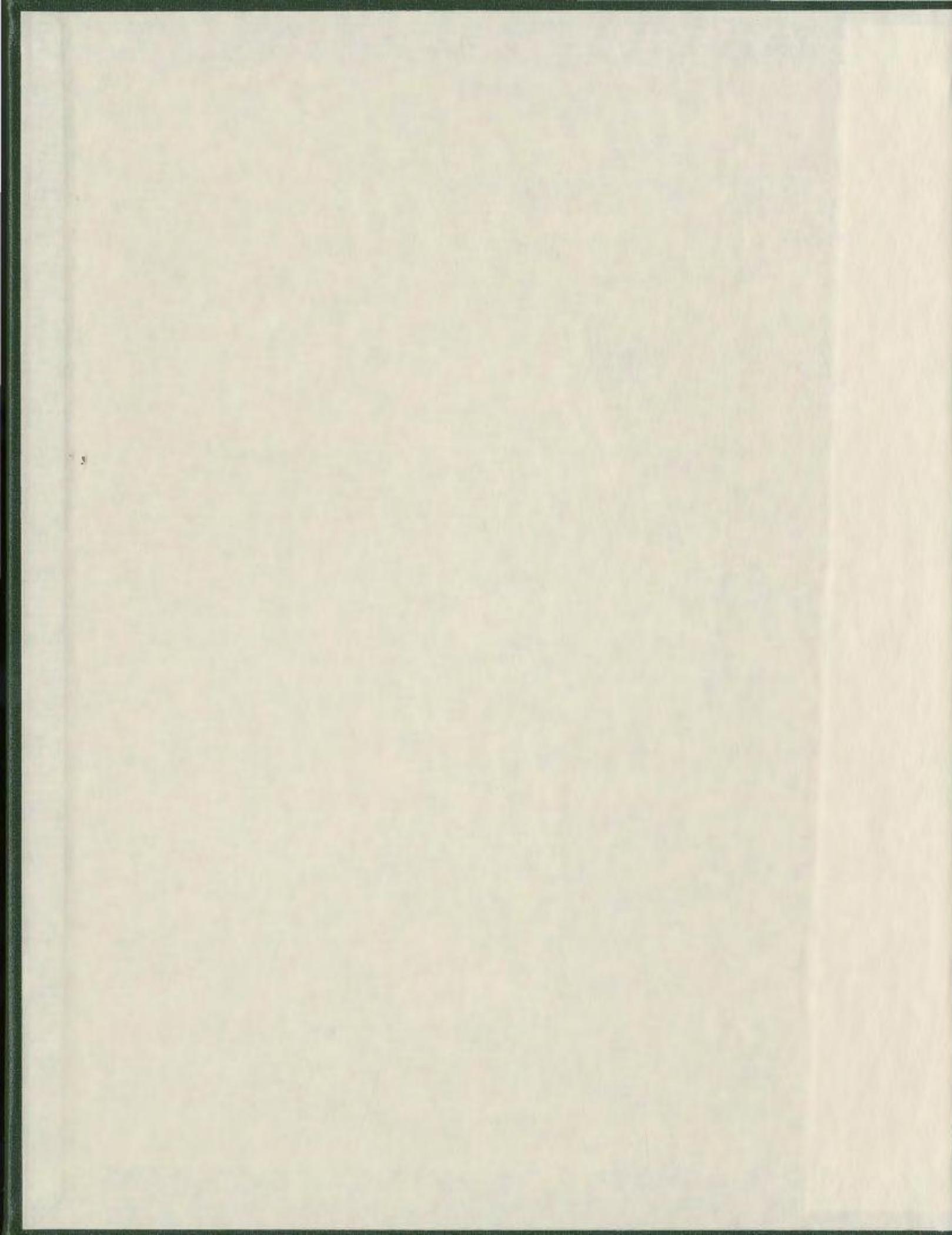# UNIVERSITY STUDENTS AND ALCOHOL USE:
A POSITIVE DEVIANCE PERSPECTIVE

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University Students and Alcohol Use: A Positive Deviance Perspective

by Maryanne Tucker

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Abstract

Dangerous alcohol consumption among university students continues to be a major issue in Canada. Numerous studies, focusing on high-risk alcohol consumers, have explored potential variables to explain this behaviour. Positive deviance (PD) offers an alternative framework, one that looks to members of the at-risk group whom manage to demonstrate behaviours that are more functional and healthy as compared to the more typical 'deviant' behaviour. This study examines whether variables identified in the sexual health and delinquency PD literature (e.g., perceived self-efficacy) would predict responsible alcohol consumption among university students. Three categories of students were surveyed: current alcohol abstainers (n=89), responsible drinkers (n=115), and binge drinkers (n=217) using a convenience sampling strategy at an Atlantic Canadian university. Results from our multinomial logistic regression were supported (X^2=246.78, df=18, p <.001), with several of our predictor variables significantly predicting group membership. While the model classification accuracy rate (i.e., 66.0%) exceeded the proportional by chance accuracy rate (i.e., 38.4%), providing further support for the model, the model itself best predicted binge drinker membership over the other two groups. Practice and future research implications are discussed.

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Chapter 1

Introduction

The current study examined several potential motivational variables associated with responsible alcohol consumption among university students within a positive deviance (PD) framework. Each of the following chapters offers a detailed description of the various phases of the present research. Chapter one consists of the study rationale, study objectives, study significance, and a summary of the PD framework. Chapter two presents an overview of the PD theoretical framework, a review of the motivating factors that have been identified for positive deviate youth, post-secondary students' alcohol consumption, university drinking behaviour within a Canadian context, and studies that have examined motivating factors for students who can limit their drinking behaviour. Additionally, the study variables and research questions are identified and defined. Chapter three provides an outline of the methods used for participant recruitment and data collection, with a detailed description of the instruments used in the data collection stage, along with a description of the data analysis procedures. Chapter four consists of a description of the study's results including: demographic and quantitative predictor information, an analysis of the relationship between each PD variable as well as certain demographic variables, and an in-depth analysis of the proposed predictive model. The final chapter discusses the results of the study and connects these findings to current literature and explores the implications they may have on future research ideas within the PD field, the delivery of student health care (i.e., intervention programs and wellness services), and institutional policies that influence the health of university students. Study limitations are also addressed.

Study Rational

Research into alcohol consumption has found that young adults aged 18-24 have a higher rate of binge drinking behaviour than any other age group (Carey, Scott-Sheldon, Carey, & DeMartini, 2007). Findings also show that within this age group students who are attending post-secondary education have a higher rate of alcohol consumption than their counterparts not attending post-secondary education (Johnston, O'Malley, Bachman, & Schulenberg, 2007; SAMHSA, 2006). Despite the increase in alcohol prevention and intervention programs at the postsecondary level during the past decade (Dowdall, 2009; Walters, Bennett, & Noto, 2000; Wechsler et al., 2002) rates of student binge drinking have failed to decline for this high-risk population (Adlaf, Demers, & Gliksman, 2004; Wechsler et al., 2002; Wechsler, Molnar, Davenport, & Baer, 1999). A series of studies by Wechsler and colleagues (Wechsler et al., 2002; Wechsler et al., 1999) analysed the results from four Harvard School of Public Health College Alcohol Studies (CAS). Each of the four CAS studies assessed the drinking behaviour of the student population at that time (i.e. in 1993, 1997, 1999, and 2001). In total information was collected from over 15,000 U.S. students and the findings highlighted the stability of student drinking behaviour over time. Results from the original survey showed that in 1993, 44% of students were considered binge drinkers and 56% were considered non binge drinkers and abstainers (39.7% non binge drinkers and 16.4% abstainers). In a 2001 comparison of the four surveys (1993, 1997, 1999, and 2001) not much had changed, despite an increase in prevention efforts during these time periods. In 2001, 44% of the student population still reported binge drinking behaviour, along with a slight decrease in those students who reported non binge drinking (i.e., 36.3% in 2001 compared with 39.7 % in 1993) and a slight increase for those students reporting abstinence (i.e., 19.3% in 2001 compared with 16.4% in 1993).

In traditional human behaviour research, those who demonstrate the undesirable or problematic behaviours are typically the ones under investigation (Babalola, Ouedraogo, & Vondrasek, 2006). In the case of university student binge drinking, students who engage in binge drinking behaviour have traditionally been the primary 'subjects' targeted in studies within this area (Walters et al., 2000; Wechsler et al., 2002; Wechsler et al., 1999); limited studies have examined the reasons university students restrict their drinking behaviour (Epler, Sher, & Piasecki, 2009; Johnson & Cohen, 2004). The end product of this approach results in an abundance of knowledge concerning the factors associated with the deviant behaviour among the high-risk drinking population but with very little knowledge about those who manage to avoid the high-risk behaviour, despite still being members of that high-risk population. Thus, what contributes to low-risk behaviour despite ties to a high-risk population remains under-studied; identifying variables that explain 'how' and 'why' some people refrain from binge drinking is critical. One alternative to the conventional way of conducting research outlined above is the positive deviance (PD) approach in which scholarly gains are achieved by looking at the positive behaviour of individuals, instead of the negative behaviour, in order to find solutions to persisting and difficult problems.

Study Objectives

Advocates of the PD approach believe that to completely understand a problem, one has to investigate the negative, as well as the positive (Biswas-Diener & Patterson, 2011). Therefore, to gain a more complete understanding of university binge drinking, researchers must also include those individuals who are able to drink responsibly and avoid binge drinking. Thus, the main objective of this current study was to investigate university students' drinking behaviour from a PD framework to help better understand what motivates students who choose to limit

their drinking behaviour in order to better understand the problem of binge drinking. In terms of university drinking research, this is a novel approach to the investigation of this problem, and one that may provide a new perspective in which to view the problem of university drinking; as far as we know this study is the first of its kind to explore university drinking from a PD framework and has the potential to be useful for guiding future research, interventions and policy efforts within this area.

Study Significance

University student binge drinking, defined as five drinks in a row for men or four drinks in a row for women (NIAAA, 2002b), continues to be a serious problem despite significant physical, social, and psychological consequences (Hingson, Heeren, Zakocs, Kopstein, & Wechsler, 2002; McCormick, Cohen, Corrado, Clement, & Rice, 2007; Wechsler et al., 2002). A 2008 Atlantic Canadian study found that the average student consumed six beers in one sitting with consequences ranging from blackouts, regretfulness associated with their actions, unprotected sex, and that one in 10 students was shown to have an alcohol problem that interfered with school (American College Health Association [ACHA]). Adlaf et al. (2004) surveyed over 6,000 Canadian undergraduate students and found that 43.9% of undergraduate students indicated experiencing one or more consequence of harmful drinking (e.g., memory loss, injury, etc.).

In 2002, the National Institute on Alcohol Abuse and Alcoholism (NIAAA) presented their findings based on a task force that was developed to produce a guideline for effective interventions for students with alcohol consumption problems. The task force was made up of professionals, educational-institution presidents and students. According to NIAAA's (2002b) manual, which integrated several databases across the U.S. to complete an overall picture of

annual high-risk drinking consequences that occur with university aged students, consequences related to binge drinking included: academic problems such as missed classes, falling behind, doing poorly on exams and papers, and receiving lower grades; unintentional injury while under the influence of alcohol; sexual assaults such as date rape while intoxicated and unprotected sex where students sometimes cannot remember if consent was given or not; property damage; and police or campus security involvement. As well, binge drinking also carries with it secondary effects on bystanders such as, other students, the larger university community, law enforcers and the community. Therefore, investigating this high-risk population (i.e., university students) in which alcohol-related harm is prevalent is vital in addressing the problem of excessive alcohol consumption.

Positive Deviance Framework

While limited empirical research exists within the PD literature (Wolfzorn, Heckert, & Heckert, 2006), studies that investigated positive deviants within the context of sexual health and delinquency have identified several intrapersonal factors as motivating forces behind their behaviour, including: a high personal commitment to the PD behaviour, perceived self-efficacy to refuse the negative deviant behaviour, and family contextual factors (e.g., parental disapproval) (Babalola et al., 2006; Wolfzorn et al., 2006). Although these variables have not been empirically tested in relation to university student binge drinking, there is reason to believe these are relevant variables for this problem as they have been shown to motivate positive deviant behaviour among this population (i.e., university students) in relation to other types of social-health related behaviour (e.g., sexual health).

Results of the current study may be used to build on future research within this new and innovative area and potentially be beneficial in directing future programming and policy.

Developing programs based on a PD framework may be used to enhance the delivery of existing programs aimed at addressing alcohol consumption among university students, or to offer alternative programs to what is currently in place. As well, findings from this research have the potential to support institutional policies that influence the health of the overall campus environment and benefit both campus and community stakeholders.

Chapter 2

Literature Review

Theoretical Framework

Sociologist Pitirirn Sorokin was the first to call attention to the idea of PD emphasizing "the importance of studying the positive to understand the negative" (Babalola et al., 2006, p. 68). While the roots of PD may stem from sociology, the idea became popularized through its use to improve the health outcomes of malnourished children during the 80's (Babalola et al.; Marsh, Schroeder, Dearden, Sternin, & Sternin, 2004). Originally, Tufts University professor Marian Zeitlin used the approach to rehabilitate children experiencing malnourishment in poor communities (Ahrari et al., 2002; Dorsey, 2000; Singhal, Shirley, & Marston, 2010). Zeitlin's work utilized an assets-based approach to help identify what was "going right in a community in order to amplify it, as opposed to focusing on what is going wrong in a community and fixing it" (Dura & Singhal, 2009, p. 4). Building on Zeitlin's earlier work, one of the main contributors to the popularization of this approach was Jerry Sternin, who in the 1990's along with his wife Monique, operationalized and applied the PD approach to help solve child malnutrition in Vietnam through their work with the not-for-profit organization Save the Children (Dorsey, 2000; Dura & Singhal, 2009; Marsh & Schroeder, 2002; Sparks, 2004; Sternin, 2003). Under a strict six month deadline, imposed by the Vietnamese government, Sternin and Monique were able to successfully apply their PD approach to four villages, resulting in malnutrition dropping by as much as 85% in some areas (Dorsey, 2000; Dura & Singhal, 2009; Marsh & Schroeder, 2002). Within Vietnam, their approach quickly spread to reach over 2.2 million people in approximately 265 Vietnamese villages. To date, this approach to child malnutrition has been successfully applied to several other developing countries (Dorsey, 2000; Fowles, Hendricks, &

Walker, 2005) and has sparked the interest of many to adopt this approach when finding solutions for other intractable problems facing communities.

In order to conceptualize the idea of PD, a variety of perspectives have emerged throughout the literature. These major approaches include the statistical approach (Heckert, 1998; Spreitzer & Sonenshein, 2004), the reactive approach (Dodge, 1985; Heckert; Heckert & Heckert, 2004; Spreitzer & Sonenshein, 2004; Wolfzorn et al., 2006) and the normative approach (Dodge, 1985; Heckert, 1998; Heckert & Heckert, 2004; Spreitzer & Sonenshein, 2004; Wolfzorn et al., 2006). The statistical approach defines deviance as "behaviors that differ from average or normal experiences" (Spreitzer & Sonenshein, 2004, p. 830). According to this approach, within a normal distribution of deviants, positive deviants would be located on the far right of the distribution and negative deviants on the far left (Spreitzer & Sonenshein, 2004). However, a limitation with this approach is its usefulness for analysing behaviour that is considered negative and the norm within the population under investigation. For example, excessive drinking is considered a negative behaviour; however, this is common within the university population and therefore the norm. According to the statistical approach then, students who excelled at this negative behaviour, i.e., who are able to drink more would be considered positive deviants and students who drank less would be considered negative, clashing with the principle of PD, studying the positive behaviour i.e., those who are able to drink less. Alternatively, the reactive approach requires that behaviour is to be observed and judged negatively by an audience for it to be deemed as deviant (Spreitzer & Sonenshein, 2004). The limitation within this approach is that only negative, not positive, behaviours can be labelled as deviate, and that these behaviours must be observed by an audience in order to meet the requirements of this approach. Therefore individuals who engage in positive behaviour (i.e.,

those who are able to drink less within a university population) would not be able to be defined using this approach. The current study utilized a normative PD framework which is defined as "the violation of or lack of conformity to normative expectations" (Heckert & Heckert, 2004, p. 76). In terms of this definition, "deviance occurs when an individual violates the norms of a social group and a deviant is a social violator" (Heckert & Heckert, 2004 p.76). Thus, when the normative expectation of a group is negative, such as the participation in criminal activity for gang members or excessive drinking for university students, those who depart from this negative norm are considered positive deviants (Spreitzer & Sonenshein, 2004). In terms of university students drinking, a majority of students note the variety of consequences of this behaviour including, remorsefulness for their actions at the times of their drinking behaviour (ACHA, 2008). Therefore, one can assume that students would view the normative expectation of binge drinking as negative, based on the consequence of the actions of binge drinking, and that others within the referent group would then commend the behaviour of those students who could limit their drinking and avoid enduring the consequences associated with excessive drinking.

From a normative framework then, PD is defined as behaviour that is working more effectively when compared with the more normative behaviour of a population (Babalola et al., 2006). Such positive behaviours help the subset of the population demonstrating such behaviour to survive and even prosper while the segment of the population displaying the normative behaviour struggle. Marsh et al. (2004) state that "positive deviance is the observation that in most settings a few at risk individuals follow uncommon, beneficial practices and consequently experience better outcomes than their neighbours who share similar risks" (p. 1177). PD assumes the solution to any human problem already exists within a community or organization (Babalola et al., 2006), and that these positive behaviours are thought to be acceptable and sustainable and

therefore can be transferred, in a low cost manner, to the group who displays the normative behavioural pattern (Babalola et al., 2006; Marsh et al., 2004). In order to successfully solve a problem we have to understand that the solutions already exist within the community.

For example, going back to Sternin's approach for solving child malnutrition, while the majority of the children within the villages of Vietnam were malnourished, there were also a select few children that seemed to be healthy despite having the same access to resources within the community as those who were malnourished. Using the PD approach, the families of those healthy children were sought out in order to detail their behaviour and the practices they were using to feed their children. After this information was gathered and analysed the goal became applying these methods to the community as a whole, because all the families within the communities had access to the same resources used by the families with the healthy children. The PD approach essentially seeks out to identify individuals, known as the positive deviants, who already have solutions in place that are successful in solving the community's predominant problem (Babalola et al., 2006). The approach takes advantage of the assets or strengths already existing within the community to help bring about "behavioural and social change" (Marsh et al., 2004, p. 1177).

Further examples of how this approach has been used to develop successful programming in other areas include smoking cessation programs in prisons (Awofeso, Irwin, & Forrest, 2008) and student retention programs within educational settings. A New South Wales prison implemented a PD Quit smoking program that used smokers who were able to quit smoking and sustain this change as models to promote a quit smoking norm in the prison setting (Awofeso et al., 2008). This approach resulted in an increased success rate to 70% in this prison as opposed to

a success rate of 52% in other prisons which utilized alternative programs not based on the PD model (Awofeso et al., 2008).

Within the education field, the approach has been successfully used to decrease drop-out rates in the rural Misiones Province of Argentina and the urban Merced area of California. In the rural Misiones Province of Argentina, the approach was used to address the problem of low primary school retention rates, within the district of Alem and San Pedro, where only 56% of students were completing the third grade (Dura & Singhal, 2009; Pascale & Sternin, 2005). Within these areas, students often dropped out of school to work and contribute to the family livelihood (Dura & Singhal, 2009). Traditionally, the roles that young children have played in the agriculture-fuelled Misiones Province are planter, weeder, and harvester, which have left education as a low priority within these rural communities (Dura & Singhal, 2009). Funded by the World Bank, Jerry Sternin was hired to present the PD approach to the community members (i.e., principles, teacher, and students' parents) to help tackle the low retention rates (Pascale & Sternin, 2005; Sparks, 2004). Schools within Argentina, that had the same resources as the schools within the Alem and Sane Pedro district, but with 78-100% retention rates, were then selected as models for those low-retention schools (Dura & Singhal, 2009). The community members looked at the behaviours and strategies used within these positive deviant, high-retention schools, and came up with an action plan to transfer their behaviours and practices over to the low-retention schools (Dura & Singhal, 2009). For example, the positive deviant teachers were educating the parents of the students on the benefits of their children continuing their education, (e.g., children could help illiterate parents apply for government subsides), and developing "learning contacts" with the parents so they would become invested in their child's education (Pascale & Sternin, 2005). Within one school year, after the application of these new

behaviours and practices, retention rates increased as much as 50% within these once low-retention schools (Pascale & Sternin, 2005).

In Merced, California, since February 2009, The California Teachers Association (CTA) has been using the PD approach to address the issue of high dropout rates of high school students within the area (California Teachers Association, 2010; Po, 2011). Statistics showed that only about half of the high school population who entered into the school in grade nine went on to graduate; a graduation rate that is lower than the country's average (Po, 2011). Teachers involved in the project were asked every year to identify students who were considered "at-risk" and "positives" (Po, 2011). At risk students consisted of students who were exhibiting preceding warning signs for dropping-out such as gang activity, low grades and low attendance (Po, 2011). Positives are considered students who came from the same background as the at-risk students, but exhibit behaviours and practices that enable them to stay in school and graduate despite the fact that these students "face many of the same obstacles as other students at-risk" (California Teachers Association, 2010; Po, 2011). The hope is that these behaviours and practices can be utilized in an effort to increase the retention of minority students (Po, 2011). Changes that have been noted are increases in the number of parents showing up for Back-to-School Night at the high school (California Teachers Association, 2010), as well as higher rates of class attendance and homework accomplished (Po, 2011).

While programming based on the PD approach has produced effective results, such as the ones listed above, it is still a relatively new concept, and within the literature has more readily been applied to help identify PD factors within high-risk populations; a prerequisite for program implementation. Currently, this approach has been successfully extended to a variety of other areas that are aimed at identifying factors that individuals actively use to prevent the normative

high-risk behaviours of their referent group. These studies include, the prevention of Hepatitis C

exposure among injection drug users (Friedman, Sandoval, Mateu-Gelabert, Meylakhs, & Jarlais,

2011; Mateu-Gelabert et al., 2007; Ribeiro, Sanchez, & Nappo, 2010), the prevention of early

sexual activity among highly sexualized youth living in West African countries (Babalola et al.,

2006; Babalola, Awasum, & Quenum-Renaud, 2002; Babalola, Tambashe, & Vondrasek, 2005),

the prevention of delinquent behaviour among youth (Wolfzorn et al., 2006), the increase of safe

sexual practices among commercial sex workers (Lapping et al., 2002; Marsh et al., 2004), the

maintenance of healthy weight-control practices among people who were once overweight

(Stuckley et al., 2011), and the increase of healthy pregnancy outcomes for women in which the

norm are unhealthy outcomes (Ahrari et al., 2002; Fowles et al., 2005).

More specifically, studies that investigated positive deviants within the context of sexual

health and delinquency have identified several intrapersonal factors as motivating forces behind

their behaviour, including: a high personal commitment to the PD ideal (Babalola et al., 2002;

Babalola et al., 2005; Babalola et al., 2006; Wolfzorn et al., 2006), perceived self-efficacy to

refuse the negative deviant behaviour, and a high regard for parental opinion (Babalola et al.,

2002; Babalola et al., 2005; Babalola et al., 2006). Although these variables have not been

empirically tested in relation to university student binge drinking, there is reason to believe these

are relevant variables for this problem as they have shown to motivate positive deviant behaviour

among this population (i.e., young adults) in relation to other types of social-health related

behaviour (e.g., sexual health).

Identified Motivating Factors for PD Youth

While proponents of PD note that the concept is still underutilized within the PD

literature that exists (Curry et al., 2010; Shoenberger, Heckert & Heckert, 2012), several factors

have been identified as motivators for positive deviant behaviours. A series of studies by Babalola and colleagues that investigated sexual behaviour have found several external and internal motivators as significant for youth aged 15-24 who practice low-risk sexual behaviour. The studies focus on a population of West Africa youth, where "group norms favour early sexual experience and multiple sexual partners" (2002, p.12). Within these regions a likely consequence of the youth's risky sexual behaviour is the contraction of the HIV infection, which is prevalent within the population. In their 2002 study, Babalola et al. labelled the youth that abstained from sex and those who used condoms as positive deviants, these youth departed from the negative norm of high-risk sexual behaviour and decreased the possible impact of this negative behaviour, HIV infection. Results from the study indicated that parental influence (i.e., girls who resided within a household where their father also lived) and perceived self-efficacy to refuse sex had a significant effect on youth abstaining from primary sexual practices (first sexual interaction), and that perceived self-efficacy to use condoms also had a significant effect on youth's use of a condom during sexual acts. In 2005, Babalola et al. examined the same population again and highlighted the importance that parental influence played on the youth's sexual behaviour. The results found that three parental factors, youth who grew up with a father in the same house, the youth's perception of how their family would disapprove of early and premarital pregnancy, and communication between parent and child, influenced these youth from abstaining from primary sexual practices. In 2006, Babalola et al., used both qualitative and quantitative measures to look at this population again and asked "What are the factors that motivate youth to adopt behaviours that do not conform to group norm [i.e. high-risk sexual activities]?" (p.67). Again, findings showed that personal commitment to the idea of waiting to engage in sexual activity, perceived self-efficacy to refuse sexual activity with someone they cared about, and family contextual

factors of the father being in the same household of the women who took part in the study, all acted as motivators for these PD's not to engage in high-risk sexual behaviour. In 2006, Wolfzorn, Heckert and Heckert, investigated criminal activity using a PD framework. They examined university students who abstained from, or nearly abstained from, delinquent activity. Students who abstained or nearly abstained were labelled as the PD's and the authors asked them specific questions in regard to why they thought they "...faithfully abided by the law" (p.109). Their results showed that the PD's followed the law due to several reasons including, that they would not want to disappoint their family, a high commitment to obtaining their goals through legitimate means, and a belief that the deviant behaviour (obtaining life goals through unethical and illegitimate manners) was not motivating to them. Taken together, these studies reveal several common themes through their investigations of young adult PD populations including, the internal factors of a high personal commitment to the positive deviant ideal and a strong perceived self-efficacy to abstain from the negative behaviour and the external factor of family context on the abstinence of the negative behaviour.

University Students Alcohol Consumption

Numerous screening tools have been utilized within the university setting to help identify student's drinking behaviours, such as The Alcohol Use Disorder Identification Test (AUDIT), the CAGE, and physical measures, such as the Blood Alcohol Concentration (BAC) test. These screeners provide a protocol for measuring alcohol consumption based on direct and indirect questions concerning alcohol usage (AUDIT, CAGE) and based on the amount of alcohol a student has in his/her blood stream (BAC). While there is no universal consensus on the definition of binge drinking, a definition has emerged in the North American literature that focuses on post-secondary drinking. The criteria for binge drinking behaviour has primarily been

defined through the works of Wechsler and colleagues in their series of studies that focused on the results of the Harvard School of Public Health College Alcohol Study (NIAAA, 2002b). This criterion has also been promoted through the work of the US's National Institute on Alcohol Abuse and Alcohol, which is more specific in the definition, differentiating binge drinking based on a gender-specific criterion (NIAAA, 2002b). This definition of high-risk drinking is stated as such, "binge drinking; that is 5 drinks in a row per occasion for males and 4 for females" (NIAAA, 2002b p. 5), and has become the key measure for capturing students' binge drinking on campuses. Within this definition a standard drink is considered equivalent to 12 ounces of regular beer, five ounces of wine, or a 1-1.5 ounce shot (NIAAA, 2002b). Therefore, students who report this level of consumption, as defined by the above definition, would be considered binge drinkers, and students who report drinking less than this measure would be considered as non-binge drinkers, and those students who report no drinking would be considered as abstainers.

Research into the alcohol consumption of young adults aged 18 to 24 shows that this age group has a higher rate of binge drinking behaviour than other age groups (Carey et al., 2007). This can also be seen in the Statistics Canada (2011) article " Heavy Drinking, 2011" in which the male age groups 18-19 and 20-34 were noted as the most likely age groups to report heavy drinking, which was defined as 5 plus drinks during one occasion per month for the last 12 months, than any other age groups in the survey. Likewise, female age groups 18-19 and 20-34 are also noted as more likely to report heavy drinking compared with any other female age groups in the survey. Research has also shown findings that within this young cohort, students who are attending post-secondary education consume more alcohol in one sitting on average, than their counterparts not attending post-secondary education (Johnston et al, 2007; SAMHSA,

2006). These findings are in line with the results of numerous Canadian studies on university drinking that indicate that alcohol consumption is the normative behaviour on Canadian university campuses (Adlaf et al., 2004; ACHA, 2008; Gliksman, Adlaf, Demers, & Newton-Taylor, 2003).

The characteristics of group norms are described as "the attitudes, expectations and behaviours within regular group members" (Arbour-Nicitopolous, Kwan, Lowe, Taman, & Faulkner, 2010, p. 191). Arbour-Nicitopolous et al. (2010) stated that these characteristics "are seen as powerful agents that can often account for, and even determine an individual's behaviour" (p. 191). While most findings on post-secondary drinking norms come from U.S. data, a few studies have extended this area to capture the Canadian student perspective. Studies that have compared Canadian and U.S. post-secondary students have found that while Canadian students consumed less alcohol than that of their U.S. counterparts (Arbour-Nicitopolous et al., 2010; Kuo et al., 2002), they still showed similar results when it came to drinking norms; an overestimate of the prevalence of alcohol use on campus (Arbour-Nicitopolous et al., 2010; Perkins, 2007).

Perkins' (2007) study sampled 5,280 students from 11 post-secondary institutions across Canada and found that the majority of students, despite the actual drinking norms within their institution, overestimated the quantity and frequency of alcohol consumptions of their peers on their campus. Findings showed that three-quarters (76%) of the students "overestimated the average amount" of alcohol consumption, "with more than one-third overestimating the norms by 3 or more drinks" (p. 2650). Results also showed that this was true for students with a broad range of drinking patterns (i.e., abstainers, light drinkers, moderate and heavy drinkers), which

has also been found in other drinking-norm studies (Campo, et al., 2003; Pollard, Freeman, Ziegler, Hersman, & Goss, 2000).

Arbour-Nicitopolous et al.'s (2010) study of 1,203 Canadian university students looked at their actual and perceived substance use. Results showed that alcohol was the most common substance actually used among the students (65.8%). Findings also showed that the majority of students also perceived "that the typical student on their campus had used alcohol (95.6%) ... in the last 30 days" (p. 193).

Taken together, these studies show that Canadian university students tend to overestimate the already established normative drinking behaviour of their peers. One can assume then, that this exaggeration only further ingrains the normative drinking belief into the minds of the Canadian student body. Indeed, results show that students' misperception of an exaggerated drinking norm tends to influence their own alcohol usage. Studies have shown that students are more likely to drink alcohol if they hold these misperceptions, which the majority of Canadian students do. In the Arbour-Nicitopolous et al. (2010) study, university students were "7 times as likely to consume alcohol in the past 30 days if they perceived the typical student to have used this substance in the past 30 days" (p. 193), after demographic variables (e.g., ethnicity, residence, relationship status, etc.) were controlled for. Based on these findings the authors suggested that the strong influence of the students' perceived alcohol norms could act as a moderator on their alcohol usage. Likewise, Perkins (2007) found that Canadian university students exaggerated perceptions of their peers' alcohol consumption norms acted as a stronger predictor of personal use. This misperception was also found to be a stronger predictor than any of the demographic variables or the "actual campus norm for consumption on each campus [11 campuses] or the actual norm for compliance with campus regulations" (p. 2645). Perkins

suggested that this misperception "may pressure or encourage otherwise moderate drinking students to drink more heavily ...[and] may also allow students predisposed to high risk drinking to do so freely with the belief that they do not have a problem because they are just like everyone else" (p. 2652).

University Student Drinking within a Canadian Context

Bunjevcevic and Johnson (2005) reported that "alcohol is the most commonly used substance among Canadian youth" (p. 2). However, Gliksman et al. (2003), forerunners on the topic of Canadian university drinking, noted that little research has been done in this area. Most research on university drinking comes from South of the border, with less being known about Canadian post-secondary students (Flett et al., 2008; McCormick et al., 2007). While limited empirical research exits within Canada, there is a growing body of literature that is highlighting the problematic nature of this behaviour within the general Canadian university student population, and more specifically for students within the Atlantic provinces (Adlaf et al., 2004; Balodis, Potenza, & Olmstead, 2009; Flett et al., 2008; McCormick et al., 2007).

While limited provincial research on university drinking has been done in Canada, a 1997 study of 6,208 Ontario University Students indicated that 38% of males, and 21% of females reported engaging in heavy alcohol consumption (Gliksman, Newton-Taylor, Adlaf, & Giesbrecht, 1997). Within the study, heavy alcohol consumption was operationally defined as the "consumption of 15 or more drinks per week" (Gliksman et al., 1997, p. 121). Results from McCormick et al.'s (2007) study of 430 post-secondary students from two British Columbia institutions, showed that 73.3% of the students reported engaging in binge drinking behaviours, with over half of the students having "done so within the past 30 days", and 27.3% of students reporting that they "had engaged in binge drinking on three to five occasions in the last month"

(p. 38). Likewise, Balodis et al.'s (2009) study of 428 undergraduate students from Queens University "found that 72% of [the student] sample reported consumption rates at binge drinking levels" (p. 523).

In 1998, the first Canadian Campus Survey was administered nationally and the alcohol usage of 7,800 students from 16 universities across Canada was gathered (Gliksman et al., 2003). Within the study, heavy episodic drinking was defined as drinking "5 or more drinks and 8 or more drinks on a single occasion... [in] an 8 to 12 week period" (Gliksman et al., 2003, p.18). Findings showed that overall, 86.6% of the students reported alcohol consumption during the past year, with 37% stating they drank on a weekly basis. The study also found that 62.7% of the students reported at least one episode of binge drinking (i.e., heavy episodic drinking) in the past 8 to 12 week time frame. This number was even higher for students in the Atlantic region, with a total of 73.9% of students reporting binge drinking behaviour. The study authors concluded that "heavy drinking is highly engrained in Canadian undergraduates' drinking patterns" (p. 17).

In 2004, the Canadian Campus Survey was administered once again by the Centre for Addiction and Mental Health [CAMH], and sampled 6,282 full-time undergraduate students from over 40 universities across Canada (Adlaf et al., 2004). Results showed that drinking rates of undergraduate students remained stable; no significant differences were seen from the 1998 survey to the 2004 survey (Adlaf et al., 2004). This pattern mimics the findings on students' rates of drinking in the U.S. (Wechsler et al., 2002; 1999). In addition to this, the results again showed that students from the Atlantic region were above the 2004 Canadian national average for drinking prevalence (90.9% vs. 85.7%) for rates of past year drinking and for rates of past month drinking (83.2% vs. 77.1%). The 2004 results from this cross-Canada survey also indicated that this heavier drinking pattern was significantly higher for students within the Atlantic Provinces

than for students within the rest of Canada (i.e., 24.5% vs. 16.1% reported heavy-frequent

drinking and 22.5% vs. 11.7% reported heavy-infrequent drinking). In terms of binge drinking,

students who fell under the category of heavy (frequent and infrequent drinkers) are considered

to be engaging in this type of drinking pattern. The results showed that more than one in four

students usually engage in this type of drinking when they do consume alcohol and the authors

concluded that "many undergraduates drink in excess on most days they drink" (Adlaf et al.,

2004, p.33) falling into the categories of heavy infrequent and frequent drinkers.

This Atlantic region trend is also in accordance with the findings from Paradis, Demers,

and Pickard's (2010) study which showed that in the overall population, Maritimers reported

significantly higher binge drinking rates than anywhere else in Canada. This trend is also

emphasized in the 2011 Statistic Canada (2011) article "Heavy Drinking, 2011" detailing the

results of the Canadian Community Health Survey, of the same year. The article indicated that

Newfoundland and Labrador's provincial rate of heavy drinking, which was defined as 5 plus

drinks during one occasion per month for the last 12 months, was found to be above the national

average (26.4 % vs. 19.0%). Within Memorial University, the largest university in Atlantic

Canada, the American College Health Association Survey, distributed to over 800 students also

showed that 55.8% of respondents had engaged in binge drinking at least once (and as many as

six times) within a two week period (ACHA, 2008).

Taken together, these studies show a significant number of students within Canadian

university campuses taking part in binge drinking behaviour, highlighting the importance of

preventative research in this area. Interestingly, a large proportion of Canadian students are able

to consume alcohol at non-dangerous levels. In the 2004 Canadian Campus Survey "roughly 1/3

(35.8%) of undergraduates are light-frequent drinking, i.e., usually drink less than once a week

and consume less than 5 drinks on the days they drink [and] another 22% are light-drinkers... [who] usually consume less than 5 drinks on days that they drink and drink less than once a week" (Adlaf et al., 2004, p.32-33). As well, findings from the ACHA (2008) survey of Atlantic Canada's Memorial University found that 44.2% of students reported not engaging in binge drinking behaviour. Thus, while a significant portion of Canadian university students have reported engaging in binge drinking behaviour, a relatively equivalent number of students have also reported not engaging in such extreme drinking. Therefore, the non-binge drinking students serve as a valid target group to study through the PD approach, which emphasises investigating what is "going right in a community [i.e. limited drinking behaviour] in order to amplify it, as opposed to focusing on what is going wrong in a community [i.e. binge drinking behaviour]..." (Dura & Singhal, 2009, p. 4).

Motivating Factors for Students Who Limit Their Drinking

A growing body of work has been focused on looking at the reasons students do not engage in drinking or limit their drinking, with the idea of using this information for education and prevention programs (Johnson & Cohen, 2004; Rosenberg et al., 2008; Slicker, 1997). Even though few studies have examined the reasons university students limit their drinking behaviour (Epler et al., 2009; Johnson & Cohen, 2004), several variables have been identified throughout the past two decades.

Barnes (1981), one of the first to investigate the topic, looked at the reasons youth in grades 7-12 and adults gave for not drinking, using the following statement; "*If you do drink*, we would like to know the reasons why you might stop drinking. *If you do not drink*, we would like to know why not" (p. 224). Both groups identified "reasons related to getting involved with the police, losing one's self-control, and having difficulties in getting a job or going to college" (p.

224) as the important reasons for not drinking alcohol. In 1984, Reeves and Draper's study also investigated 196 high school students' reasons for abstaining from, or decreasing, their alcohol intake. They looked at three different areas for motivation, including "personal (to maintain self-esteem), social (better things to do, parents do not approve) and environmental (availability)" (Reeves & Draper, 1984, p. 820). Results showed that reasons "related to health, self-esteem/self control, and parental disapproval/disappointment" (Reeves & Draper, 1984, p. 819) were rated as the most significant for alcohol decrease or abstinence.

In 1989, Greenfield, Guydish and Temple extended this work and looked at the reasons university students gave for limiting their drinking. They sampled 2,482 students from nine universities within the U.S. and found that students limited their drinking because of "internalize[d] preferences for self-control, regard for external authorities like religion or parents, attempts at self-reform and performance aspirations" (Greenfield et al., 1989, p. 113). Results also showed that students who strongly endorsed self-control motives and "reasons related to upbringing" (Greenfield et al., 1989, p. 113) were more likely to not engage in excessive drinking patterns. In addition to this study, Slicker's (1997) research also investigated university students' motivations for not drinking. A sample of 403 students was asked to identify the reasons why they choose not to drink, or drink very little, on an occasion. Results showed that students' motives to avoid alcohol use differed depending on the quality and frequency of their alcohol consumption and included: religiosity for light drinkers, safety for moderate drinkers, and expense for heavy drinkers.

Later studies also looked into both adolescents' and university students' motivations. Stritzke and Butt's (2001) study utilized the Motives for Abstaining for Alcohol Questionnaire to investigate 187 Australian high school students' reasons for not drinking. They found that "fear

of negative consequences, indifference, and family constraints" (p. 635) were the most highly endorsed motives for not drinking. A 2004 study by Johnson and Cohen examined 147 college students' reasons for not drinking. They looked at 46 reasons for not drinking and concluded that six factors were found to be the most important, including: "disapproval/lack of interest, loss of control, social responsibility, risks and negative effects, lack of availability, and health concerns" (p. 1142). Epler's et al. (2009) study also investigated 489 college students' reasons for abstaining or limiting their drinking over a 16-year period. The findings from this longitudinal study showed that motives that are based on personal convictions (i.e., upbringing or religiosity) were associated with decreased levels of alcohol consumption.

A more recent study by Huang, DeJong, Schneider, and Towvim (2010) aimed at dealing with some of the limitations of the previous research within this area, such as the small sample sizes, and included 2,500 college students from 18 college and universities across the U.S. Findings showed that students who abstained from alcohol use (i.e., students who reported consuming no alcohol) tended to endorse more lifestyle related choices, whereas students who identified as heavy drinkers (i.e., students in the 4th quartile of the *Composite Drinking Scale*) endorsed more motivations concerning performance, such as interference with school work or having to drive home, and health, such as weight gain from alcohol use.

While few studies have looked at the reasons why students limit their alcohol intake (i.e., non-binge drinkers) the motivations that influence this behaviour have been shown to consist of both internal and external factors. Such reasons identified from the above literature include: self-control (Barnes, 1981; Greenfield et al., 1989; Reeves & Draper, 1984; Slicker, 1997), parental pressure (Epler et al., 2009; Greenfield et al., 1989; Reeves & Draper; Stritzke & Butt, 2001), attempts at self-reform due to previous negative consequences (Greenfield et al., 1989), and

provide some additional support for the above noted PD variables (i.e., personal commitment, perceived self-efficacy, and family contextual factors). In addition to this, the above studies that utilized a rating scale to measure motivations showed that a relationship exists between the reasons students give for limiting their drinking and their alcohol consumption; the more strongly the student endorsed a reason for limiting or abstaining, the less they drank (Barnes; Huang et al., 2010; Reeves et al., 1984). Therefore, learning from this population has merit in the fight against the university norm of alcohol consumption. Prevention programs aimed at using these motivations to influence the behaviour of students who engage in heavy drinking behaviours may result in decreased levels of alcohol consumption.

The Current Study

Using a PD framework, the current study expanded the PD literature to include Canadian student health, while addressing certain limitations from previous research that have examined university students who limit their drinking behaviour. As noted above, while significant research exists on students who engage in binge drinking behaviour (Walters et al., 2000; Wechsler et al., 2002; Wechsler et al., 1999), a relatively limited amount of studies have examined university students who limit their drinking behaviour (Epler et al., 2009; Johnson & Cohen, 2004), and limited research exists on Atlantic Canadian university drinking (Gliksman et al., 2003). As well, the above mentioned studies that have examined this PD population did not combine the methodology of PD and binge drinking [defined as five drinks in a row for men or four drinks in a row for women (NIAAA, 2002b)], nor have they utilized the variables which have already been found in PD literature to maintain positive behaviour.

Study Variables

    Demographic Variables.

    The survey consisted of a demographic questionnaire measuring several control variables. Areas examined included: age, gender, marital status, sexual orientation, ethnicity, religious background, current year in school as well as current student and living status, hours of work and volunteer per week, membership in university athletics, clubs, societies, and unions; factors (e.g. medical condition, disability, abstinence) preventing alcohol use; age of first drink; and age at which the participant began drinking regularly.

    Within the post-secondary drinking literature, certain student characteristics have been repeatedly associated with higher rates of alcohol consumption. Findings from the NIAAA's (2002b) Task Force Report highlighted the importance of several factors on students' drinking rates. Among these factors, first year drinking, living arrangements, and athletic membership were identified as important in terms of high-risk drinking. Within the report, and among other research within the area, it has been noted that heavier drinking patterns are often adopted by first year students entering a post-secondary institution (Borsari, Murphy, & Barnett, 2007; NIAAA, 2002b), and that these rates remain high until students reach around the 24 age range mark (Wechsler et al., 2002). Therefore, one can assume that higher rates of drinking are associated with the undergraduate years of university. Living off-campus (vs. living on-campus) was also emphasized within the report as being associated with lower drinking rates. This was also highlighted within Presley, Meilman and Leichliter's (2002) research which looked at the college drinking literature published 10 years prior to their date of study. Athletic membership was also a factor noted such that, higher membership with college athletics was associated with

higher drinking levels, which has been found in numerous other studies (Nelson & Wechsler, 2001; Wechsler et al., 2002).

Alcohol Consumption.

Alcohol consumption may be operationally defined in several ways in order to classify a person's drinking habits. The National Institute on Alcohol Abuse and Alcohol, however, provides a specific definition of binge drinking, differentiating the amount of alcohol consumed based on a person's biological sex. They define binge drinking as "5 drinks in a row per occasion for males and 4 for females" (NIAAA, 2002b, p. 1). Using the Daily Drinking Questionnaire (DDQ: Collins, Parks, & Marlatt, 1985) the frequency and quantity of alcohol consumed by student participants was defined in the current study as number of drinks consumed in a row during each day in a typical week in the last 30 days. Students were then classified into one of three alcohol consumption behaviour categories (i.e., Abstaining, Limited Drinking or Binge Drinking) based on their self-responses. The Abstaining category was classified as those reporting never drinking during a typical week in the last 30 days. The Limited Drinking category was classified as those reporting drinking less than 5 drinks in a row for men and less than 4 drinks in a row for women, during a typical week in the last 30 days, and the Binge Drinking category was classified as those reporting drinking 5 or more drinks in a row for men and four or more drinks in a row for women during a typical week in the last 30 days.

Personal Commitment.

Personal commitment to the ideal of responsible drinking was operationally defined using the behaviours expressed in the College Drinking Attitude Scale (CDAS) (Gonzalez, 1990). The scale lists both responsible and irresponsible attitudes toward the use of alcohol and measures the

degree which a student is likely to endorse responsible alcohol-related behaviour. The higher a student's scores the higher the degree of responsibility.

Self-Efficacy.

Students' perceived self-efficacy to refuse binge drinking was operationally defined on the questions used within The Drinking Refusal Self-Efficacy Questionnaire - Revised edition (DRSEQ-R; Oei, Hasking, & Young, 2005). This psychometric tool is designed to assess an individual's belief in his/her ability to refuse drinking alcohol within three contexts: social, emotional and opportunistic. A higher score on any one factor indicates a higher self-efficacy in this category and a higher overall score indicates a general higher self-efficacy in that person.

Parental Influence.

Parental influence was operationally defined using a modified version of the Motive for Abstaining from Alcohol Questionnaire (MAAQ; Stritzke & Butt, 2001). This instrument measures students' personal reasons for limiting drinking (i.e., fear of negative consequences, dispositional risk, family constraints, religious constraints, and indifference; Stritzke & Butt, 2001). A higher score on any one factor indicates a higher motivation to limit their drinking due to this factor and a higher overall score indicates higher motivation to limit their drinking in general. Family constraints factor consisted of four questions within the questionnaire, an example of such a question would be "I was brought up to abstain from alcohol beverages."

Research Question and Hypotheses

The primary purpose of the present study was to learn if the internal and external variables (i.e., personal commitment, perceived self-efficacy, and family contextual factors), identified within the positive deviant literature are also motivating factors for students who choose to limit their alcohol consumption. Accordingly, this study addressed the following

research question: do the internal and external variables (i.e., personal commitment, perceived self-efficacy, and family contextual factors), identified from positive deviants within the sexual health/delinquency literature predict refraining from binge drinking behaviour among university students? More specifically, it is hypothesized that students within the Limited Drinking category will demonstrate higher instances of these internal and external variables than the students within Binge Drinking category. Additionally, our demographic variables were explored in the model.

Summary of Hypotheses:

Hypothesis 1 (H1): Personal commitment will be associated with less alcohol consumption

Hypothesis 2 (H2): Self-efficacy will be associated with less alcohol consumption.

Hypothesis 3 (H3): Family Contextual factors will be associated with less alcohol consumption.

Hypothesis 4 (H4): The demographic variables, Year in University, Living Status, and Athletics will be associated with alcohol consumption such that, less alcohol consumption will be associated with more years spent in university, off-campus living arrangements, and non-participation in university athletics.

Hypothesis 5 (H5): Personal Commitment, self efficacy, and family contextual factors will be predictive of limited drinking behaviour, while controlling for Year in University, Living Status, and Athletics.

Chapter 3

Methodology

Participants

This study utilized a cross sectional survey design to examine student drinking behaviour (i.e., quantity of use) as well as information on our predictor variables (i.e., personal commitment, perceived self-efficacy, and family contextual factors). A convenience sample of 541 students was recruited to take part in the survey from Memorial University of Newfoundland in St. John's, Newfoundland, Canada. Participants in the present study were 17 years of age or older. Emails were sent to students' university accounts by enlisting the use of several on-campus listserves (See Appendix A for a list of the listserves used). Participants received an email briefly describing the study (see Appendix B) which invited them to click on a link that took them to the informed consent form (see Appendix C) detailing the study. Participants had the opportunity to ask any questions that they had regarding the study (via email) and also had the option to disregard the study if they were not interested in participating. However, if the participants were interested, they could continue with reading the informed consent form and click "yes" at the bottom of the informed consent form stating they "have read and understand the information provided and consent to participate in this study" and continue on to the online questionnaire.

All completed questionnaires received included no identifying information on them. Thus, participants' data was anonymous to the research team. Survey Monkey's online questionnaire and survey software acted as the platform for the electronic questionnaire developed for this study. Survey Monkey offers SSL (Secure Sockets Layer) encryption for transmitting private information via the Internet and stores data behind the latest in firewall and

intrusion prevention technology. The data was stored on their secured server where it was downloaded by the researchers at several points during the lifetime of the Survey Monkey subscription (4 months). As the survey data was downloaded and collected, it was stored in password protected electronic format. Hard copies of the questionnaire results are also kept in a secure filing cabinet at Memorial University for five years. This was conveyed to participants in the informed consent form.

Participants also received an incentive to participate in the survey by voluntarily sending their name and address via email to the main researcher of this study, who randomly drew a name and gave a prize of a $50.00 Wal-Mart gift card. If participants were interested in entering their names for the prize they were directed to forward their information to an email address which was set-up separately from the questionnaire results, to ensure anonymity was maintained. Participants did not have to complete the questions in order to enter their name into the draw.

Measures

Demographic.

The survey consisted of a demographic questionnaire measuring several control variables. Areas examined included: age, gender, marital status, sexual orientation, ethnicity, religious background, current year in school as well as current student and living status, hours of work and volunteer per week, membership in university athletics, clubs, societies, and unions; factors (e.g. medical condition, disability, abstinence) preventing alcohol use; age of first drink; and age at which the participant began drinking regularly.

Daily Drinking Questionnaire.

Participants' frequency and quantity of alcohol consumption was assessed using the Daily Drinking Questionnaire (DDQ; Collins et al., 1985) with permission from the author, Dr.

R. Collins. Participants were asked to enter in the number of drinks they would consume and the number of hours spent consuming those drinks during each day of the week to describe their typical weekly drinking pattern for the past 30 days. Within the DDQ, an illustrated guideline that described the equivalency of one standard drink in the various forms of alcohol (i.e., in beer, wine, liquor, etc.) was used as a reference for the participants to ensure that each participant understood the measure of one stand drink. If the participant did not drink alcohol, he/she was directed to enter in all zeros. The DDQ has demonstrated acceptable convergent validity, $r = .50$, $p = 001$ (DDQ with the *Drinking Practices Questionnaire*; Collins et al., 1985), $r = .61$, $p < .001$ (DDQ and the *Short Michigan Alcoholism Screening Test*; Collins & Lapp, 1992), and a test-retest reliability of $r = .87$, $p. < .001$ for a two month time span (see Neighbors, Dillard, Lewis, Bergstrom, & Neil, 2006).

The study outcome variable, quantity of alcohol consumed by student participants, was operationally defined as number of drinks consumed on any one occasion during a typical week in the last 30 days. Students classified as engaging in *Abstaining* drinking behaviours were those reporting never drinking during a typical week in the last 30 days. Students classified as engaging in *Limited Drinking* behaviour were those reporting drinking less than 5 drinks in a row for men and less than 4 drinks in a row for women, on one occasion during a typical week in the last 30 days. Students classified as engaging in *Binge Drinking* behaviours were those reporting drinking 5 or more drinks in a row for men and four or more drinks in a row for women, on one occasion during a typical week in the last 30 days.

The College Drinking Attitude Scale.

Students' personal commitment to the concept of responsible drinking was assessed by using The College Drinking Attitude Scale (CDAS; Gonzalez, 1990) with permission from the

author, Dr. G. Gonzalez. The CDAS is a 20-item scale that lists both responsible and irresponsible attitudes toward the use of alcohol. Respondents indicate on a 5-point Likert-Scale ranging from "*Very Likely*" to "*Very Unlikely*", the degree to which they are likely to endorse responsible alcohol-related behaviour. Higher scores on the scale indicate higher degrees of responsibility. The validity and reliability of the instrument was measured on over 4,000 college students (Gonzalez, 1990). The test instrument has a test-retest reliability of $r = .78$ and an internal consistency of $\alpha = .73$ and demonstrated item analysis reliability and criterion validity (Gonzalez, 1990).

The Drinking Refusal Self-Efficacy Questionnaire – Revised.

Students' perceived self-efficacy to refuse binge drinking was assessed using The Drinking Refusal Self-Efficacy Questionnaire - Revised edition (DRSEQ-R; Oei, Hasking, & Young, 2005) with permission from the author, Dr. T. Oei. This 19-item psychometric tool is designed to assess an individual's belief in his/her ability to refuse drinking alcohol within three contexts (i.e., social pressure, emotional relief, and opportunistic). Respondents indicate how sure they are that they could resist drinking alcohol on a scale ranging from "*1, I am very sure I could NOT resist drinking*" to "*6, I am very sure I could resist drinking.*" A higher score in any of the three contexts indicates a higher self-efficacy in this category, and a higher overall score indicates a general higher self-efficacy in that person to refuse drinking across contexts. The original version was tested with a university students and showed test-retest reliability ($r = 0.84 – 0.99$) and an internal consistency of ($\alpha = .87 – 0.94$) (Young & Oei, 1996). The revised edition was then sampled with university students, community and alcohol dependent populations and showed to be more stable than the original and was also found to have good construct and concurrent validity (Oei et al., 2005).

The Motives for Abstaining from Alcohol Questionnaire.

Participants' family contextual factors were assessed using a modified version of The Motives for Abstaining from Alcohol Questionnaire (MAAQ; Stritzke & Butt, 2001), with permission from the author Dr. W. Stritzke. The MAAQ is a 19-item scale that measures students' personal reasons for limiting drinking (i.e., fear of negative consequences, dispositional risk, family constraints, religious constraints, and indifference). Respondents are asked to indicate how important each statement within the questionnaire is as a reason for limiting their drinking, on a scale from *"Not at all important"* to *"Extremely important."* A higher score on any one factor indicates a higher motivation to limit their drinking due to this factor and a higher overall score indicates a general higher motivation to limit their drinking in general. The test instrument has demonstrated adequate internal consistency for each factor and also for the total scale ($\alpha = .88$; see Stritzke & Butt, 2001 for a review).

Summary

Five hundred and forty one Atlantic Canadian university students took part in this study aimed at investigating the motives of students who are able to limit their drinking behaviour. Hypotheses were generated from previous PD sexual health literature. Established questionnaires (DDQ, CDAS, DRSEQ-R, MAAQ) were used to assess key study variables. The results of the participants' scores and how they related to the proposed hypotheses generated from the PD literature can be seen in the following chapter.

Chapter 4

Results

Data Analysis Overview

The research design for this study consisted of a non-experimental, convenience sample survey in order to investigate the relationship between student self-reported alcohol consumption (i.e., abstaining behaviour, limited drinking behaviour, or binge drinking behaviour) and the internal and external variables (i.e., personal commitment, perceived self-efficacy, family contextual factors), identified within the PD literature. The goal of this study was to determine whether or not there was a significant relationship between the identified PD variables and students who identified as engaging in limited drinking behaviour. In addition to this, exploratory analysis was conducted to help determine if potential relationships existed between the type of drinking behaviour a university student engaged in and the hypothesised relevant demographic variables (i.e., Year in University, Living Status, and Athletics), and how they may impact the relationship between the PD variables identified above and students who identified as engaging in limited drinking behaviour. A secondary gain of the current study was an exploration of how such predictor variables relate to student self-reports of abstinence drinking behaviour and binge drinking behaviour.

Summary of Hypotheses:

H1: Personal commitment will be associated with less alcohol consumption

H2: Self-efficacy will be associated with less alcohol consumption.

H3: Family Contextual factors will be associated with less alcohol consumption.

H4: The demographic variables. Year in University, Living Status, and Athletics will be associated with alcohol consumption such that, less alcohol consumption will be associated

with more years spent in university, off-campus living arrangements, and non-participation in university athletics.

H5: Personal Commitment, self efficacy, and family contextual factors will be predictive of limited drinking behaviour, while controlling for Year in University, Living Status, and Athletics.

The data was collected and then scored according to the procedure discussed in Chapter 3, and was entered into an SPSS database for analysis. Frequencies, means, standard deviations, and measures of skewness and kurtosis were calculated for the quantitative predictors and appropriate demographic variables for each type of drinking behaviour. Correlations i.e., Spearman's rho (rs) were conducted to determine any univariate relationships between the three PD variables described above with the criterion variable, self reported type of drinking behaviour. We also explored the demographic variables noted above in relation to our criterion variable. Finally, a multinomial logistic regression was conducted to examine the predictive relationship of the PD and demographic variables with our criterion variable, type of drinking.

Demographic Analysis

Following the NIAAA's definition of binge drinking, the results from the DDQ were used to classify students into one of three types of drinking behaviour categories (i.e., abstaining, limited drinking, and binge drinking behaviours). A demographic breakdown of each type of drinking behaviour category can be seen in Table 1.

Table 1

A Breakdown of Students' Demographic Information Based on Their Self-Reported Type of

Drinking Behaviour

Demographic Variable	Abstaining $N = 122$ (22.6%)	Limited Drinking $N = 154$ (28.5%)	Binge Drinking $N = 265$ (49.0%)	Total $N = 541$
Age (18-24)	76.2% M: 22.59 SD: 5.06	70.5% M: 23.68 SD: 6.02	84.9% M: 20.83 SD: 3.12	78.8% M: 22.03 SD: 4.72
Sex (Female)	76.2%	76.0%	75.8%	76.0%
Marital Status (Single)	70.5%	56.5%	73.6%	68.0%
Sexual Orientation (Heterosexual)	91.0%	89.6%	89.4%	89.8%
Race (Caucasian)	77.0%	83.8%	91.7%	86.1%
Religion (Catholic/ Protestant)	28.7%; 32.0%	27.9%; 22.1%	41.9%; 13.6%	34.9%; 20.2%
Practicing Religion (No)	51.6%	64.9%	62.6%	60.8%
Student Status (Full-time)	87.7%	88.3%	90.2%	89.1%
Year in University (1st/2nd/3rd/4th)	17.2%; 19.7%; 18.0%; 13.9%	17.5%; 14.9%; 8.4%; 11.0%	28.3%; 26.4%; 13.6%; 11.7%	22.7%; 21.6%; 13.1%; 12.0%
Living Status (On Campus vs. Off)	41.8%; 54.9%	27.3%; 68.2%	56.6%; 41.9%	44.9%; 52.3%
Club, Society, Union (Yes)	55.7%	50.0%	55.8%	54.2%
Weekly Hours Worked (0 hours)	51.6%	42.9%	55.1%	50.8%
Weekly Volunteer Hours (0 hours)	46.7%	57.1%	52.8%	52.7%
Athletics (Yes)	15.6%	15.6%	34.7%	25.0%

Quantitative Predictor Analysis

A quantitative predictor, i.e., CDAS, DRSEQ-R (Emotion; Social; Opportunistic),

MAAQ (Fear; Family; Religion; Indifference; Risk), breakdown of each type of drinking

behaviour category can be seen in Table 2.

Table 2

A Breakdown of Students' Quantitative Predictor Information Based on Their Self-Reported

Type of Drinking Behaviour

Quantitative Predicators	Abstaining N = 122 (22.6%)	Limited Drinking N = 154 (28.5%)	Binge Drinking N = 265 (49.0%)	Total N = 541
CDAS	N: 100 M: 83.28 SD: 10.23	N: 131 M: 79.34 SD: 8.19	N: 241 M: 72.21 SD: 9.33	N: 472 M: 76.53 SD: 10.31
DRSEQ-R (Emotion)	N: 115 M: 40.82 SD: 4.52	N: 144 M: 38.92 SD: 5.54	N: 251 M: 37.45 SD: 7.22	N: 510 M: 38.33 SD: 6.37
DRSEQ-R (Social)	N: 114 M: 27.25 SD: 4.22	N: 144 M: 22.69 SD: 5.65	N: 248 M: 20.66 SD: 6.02	N: 506 M: 22.72 SD: 6.12
DRSEQ-R (Opportunistic)	N: 114 M: 41.02 SD: 5.08	N: 144 M: 40.52 SD: 2.88	N: 249 M: 39.90 SD: 4.51	N: 507 M: 40.33 SD: 4.28
MAAQ (Fear)	N: 113 M: 24.90 SD: 4.85	N: 141 M: 23.53 SD: 4.92	N: 241 M: 20.64 SD: 5.20	N: 495 M: 22.44 SD: 5.35
MAAQ (Family)	N: 111 M: 11.98 SD: 5.32	N: 141 M: 9.91 SD: 4.79	N: 241 M: 9.47 SD: 3.98	N: 493 M: 10.16 SD :4.65
MAAQ (Religion)	N: 113 M: 5.00 SD: 3.25	N: 142 M: 3.38 SD: 2.29	N: 242 M: 2.92 SD: 1.80	N: 497 M: 3.52 SD: 2.48
MAAQ (Indifference)	N: 111 M: 8.31 SD: 1.82	N: 142 M: 6.44 SD: 2.50	N: 243 M: 4.95 SD: 2.29	N: 496 M: 6.13 SD: 2.62
MAAQ (Risk)	N: 114 M: 12.46 SD: 7.73	N: 140 M: 13.24 SD: 7.72	N: 241 M: 12.98 SD: 7.35	N: 495 M: 12.94 SD: 7.53

Correlations Between Variables

Consistent with H1-3, the correlation pattern (shown in Table 3) illustrates the expected significance of the three PD variables, personal commitment to responsible drinking (CDAS), self-efficacy to refuse drinking [DRSEQ-R (Emotional; Social; Opportunistic)], and family contextual factors [MAAQ (Family)], under investigation. All variables were significantly related to student self-reported alcohol consumption, such that higher scores on these variables were associated with less drinking. As well, the correlation pattern (shown in Table 4) also illustrated the expected significance of the three demographic variables, Year in University (i.e., 1st year to graduate level), Living Status (i.e., on-campus vs. off-campus living) and Athletics (participant or not). Consistent with H4, the relationships indicate that less drinking was associated with more years spent in university, off-campus living arrangements, and non-participation in university athletics.

Table 3

Descriptive Statistics and Correlations between PD Variables

Variable	M	SD	1	2	3	4	5	6	7	8	9	10
1. Type of Drinker	2.26	0.80	-	-.458**	-.259**	-.428**	-.250**	-.348**	-.159**	-.251**	-.509**	.022
2. CDAS	76.53	10.31		-	.369**	.505**	.353**	.508**	.225**	.267**	.434**	.119*
3. DRSEQ-R (Emotion)	38.63	6.37			-	.586**	.660**	.131**	.099*	.094*	.231**	.015
4. DRSEQ-R (Social)	22.72	6.12				-	.603**	.296**	.189**	.191**	.405**	.004
5. DRSEQ-R (Opportunistic)	40.33	4.28					-	.157**	.151**	.071	.274**	.045
6. MAAQ (Fear)	22.44	5.35						-	.520**	.333**	.583**	.413**
7. MAAQ (Family)	10.16	4.65							-	.603**	.555**	.613**
8. MAAQ (Religion)	3.52	2.48								-	.439**	.374**
9. MAAQ (Indifference)	6.13	2.62									-	.442**
10. MAAQ (Risk)	12.94	7.53										-

Note. $* p < .05, ** p < .01$ (two-tailed).

Table 4

Descriptive Statistics and Correlations between Identified Demographic Variables

Variable	1	2	3	4
1. Type of Drinker	-	-.195**	-.170**	-.209**
2. Year in University		-	.496**	.216**
3. Living Status			-	.352**
4. Athletics				-

Note. $* p < .05. ** p < .01$ (two-tailed).

Multinomial Regression Analysis

Using a multinomial logistic regression analysis, a model was constructed using the PD variables and the proposed demographic variables to predict student self-reported alcohol consumption (H5). Results from the multinomial regression were supported (X^2=274.49, df=24, p <.001) with several of the predictor variables and one of the demographic variables predicting group membership. The overall relationship between the predictor variables and type of drinking behaviours can be seen in Table 5. Within the model there was a significant relationship between CDAS, DRSEQ-R (Social; Opportunistic), MAAQ (Family) and athletic involvement in relation to alcohol consumption. While the classification accuracy rate (71.2%) exceeded the proportional by chance accuracy rate (38.4%), the model itself best predicts binge drinking behaviour (87.5%) and abstaining behaviour (65.9%), rather than limited drinking behaviour (44.2%). This provides support for H5, but shows that the model predicts binge drinking and abstinence at higher rates than limited drinking.

Table 5

Overall Relationship between the Independent Variables and the Dependent Variable

Variables	Chi-Square (X^2)	Df	Signifance
CDAS	17.25	2	< .001**
DRSEQ-R (Emotion)	3.17	2	.205
DRSEQ-R (Social)	15.48	2	< .001**
DRSEQ-R (Opportunistic)	11.27	2	.004**
MAAQ (Fear)	4.10	2	.129
MAAQ (Family)	7.16	2	.028**
MAAQ (Religious)	5.83	2	.054
MAAQ (Indifference)	45.25	2	< .001**
MAAQ (Risk)	20.32	2	< .001**
Year in University	2.39	2	.303
Living Status	3.96	2	.138
Athletics	8.12	2	.017**

Note. * p .05. ** $p < .01$.

Results from the multinomial regression predicting student self-reported alcohol consumption are presented in Tables 6 and 7, respectively. These predictors differentiate students who engaged in abstinence drinking behaviours, from those who engaged in limited drinking behaviors (Table 6) and students who engaged in binge drinking behaviours from those who engaged in limited drinking behaviours (Table 7).

Table 6

Multinomial Regression Predicting Self-reported Abstaining Behaviours

Predictor	B	SE	Wald	Significance	OR	95.0% CI (OR) Lower	Upper
DRSEQ-R (Social)	0.16	0.05	12.40	< .001	1.17	1.07	1.28
DRSEQ-R (Opportunistic)	-0.19	0.08	5.86	.015	0.82	0.70	0.96
MAAQ (Indifference)	0.36	0.10	11.82	.001	1.43	1.17	1.75
MAAQ (Risk)	-0.11	0.03	10.20	.001	0.90	0.84	0.96

Note. OR indicates the likelihood of being in the abstaining group in reference to the limited drinking group (Garson, 2012). Data only shown for significant predictors that were also significant in the overall relationship ($p < .05$).

Table 7

Multinomial Regression Predicting Self-reported Binge Drinking Behaviours

Predictor	B	SE	Wald	Significance	OR	95.0% CI (OR) Lower	Upper
CDAS	-0.07	0.02	11.35	.001	0.94	0.90	0.97
MAAQ (Family)	0.14	0.05	6.85	.009	1.15	1.04	1.28
MAAQ (Indifference)	-0.31	0.08	14.56	< .001	0.73	0.62	0.86
Athletics	0.82	0.35	5.40	.020		1.14	4.55
Participation					2.28		
Non-Participation					1.00		

Note. OR indicates the likelihood of being in the binge drinking group in reference to the limited drinking group (Garson, 2012). Data only shown for significant predictors that were also significant in the overall relationship ($p < .05$).

As can be seen, self-efficacy [DRSEQ-R (Opportunistic)] was a predictor for students who engaged in limited drinking behaviour, such that students who were certain they could resist drinking during opportunistic situations (e.g., after playing a sport) were more likely to identify with limited drinking alcohol consumption levels rather than abstinence levels. The results show that for each unit increase in certainty that one could resist drinking in opportunistic situations, the odds of being in the abstaining group decreased by 17.6%. As well, students who had a higher degree of

responsible drinking (higher values on CDAS) were more likely to engage in limited drinking, rather than binge drinking. Such that, for each unit increase in commitment to responsible drinking, the odds of being in the binge drinking group decreased by 6.5%.

However, for self-efficacy within social situations [DRSEQ-R (Social)], students who were certain they could resist drinking during social pressure (e.g., when my friends are drinking) were more likely to identify with abstaining drinking behaviours rather than with limited drinking behaviours. The findings show that for each unit increase in certainty that one could resist drinking in social situations, the odds of being in the abstaining group increased by 17.4%. Also, for MAAQ (Family) it was found that students who had a higher motivation to limit their drinking due to family factors (e.g., my family disapproves of drinking alcohol) were less likely to be in the limited drinking behaviour group, rather than the binge drinking behaviour group. Such that, for each unit increase in motivation to limit drinking due to family factors, the odds of being in the binge drinking behaviour group increased by 26.9%. Finally, as can be seen, self-efficacy within emotional situations [DRSEQ-R (Emotion)] (i.e., resisting drinking during emotional situations such as when a person is upset of anger) had no predictive value for students who engaged in limited drinking behaviour. In terms of demographic variables, students were over two times as likely to engage in binge drinking behaviour, rather than limited drinking behaviour, if they were participants in university athletics. The other two demographic variables held no predictive value in the model.

While MAAQ (Indifference) and MAAQ (Risk) did not comprise any of the variables under investigation, it should be noted that both were found to play a

predictive role in the model. For all three alcohol consumption levels, MAAQ (Indifference) was a predictive variable. Students who had a higher motivation to limit their drinking behaviour due to indifference (e.g., I have no desire to drink alcohol) were more likely to be in the abstaining behaviour group than the limited drinking behaviour group, and less likely to be in the binge drinking behaviour group rather than the limited drinking behaviour group. Therefore, a higher motivation to limit alcohol consumption was associated with lower drinking rates for participants in this study. As well, MAAQ (Risk) was also a predictor for students who engaged in limited drinking behaviour, such that students who were more motivated to limit their drinking due to dispositional risk (e.g., having a genetic condition that predisposes one to have a hard time breaking down alcohol) were more likely to identify with the limited drinking behaviour group, rather than the abstaining behaviour group.

The results showed support for H1, H2, and H3, a relationship did exist between the PD and demographic variables under investigation and the type of drinking behaviour a student identified with. As can be seen, higher personal commitment, self-efficacy, and regard for family factors were all associated with less drinking. As well, more time spent in university, off-campus living arrangements, and non-participation in university athletics were also found to be associated with less alcohol consumption, providing support for H4. Findings showed less support for our primary hypothesis, H5. The predictive model was most useful in classifying students who engaged in binge drinking behaviour and abstaining behaviour rather than limited drinking behaviour. Of all the PD variables, CDAS and DRSEQ-R (Opportunistic) were the only two variables found to predict limited drinker group membership, lending some support for H5. However, these relationships only showed

predictive value for the limited drinking behaviour group in reference to only one of the other dependent variable levels (i.e., limited drinkers in reference to current abstainers or binge drinkers) and not both (i.e., limited drinking behaviour in reference to current abstaining behaviour and binge drinking behaviour). The remaining two self-efficacy variables, as well as the family variable were not found to be common predicators of students who self-reported as limited drinking behaviour which was inconsistent with H5. Consistent with H4, athletic participation did hold predictive value in the model such that, it best predicted binge drinking behaviour group membership.

Summary

As predicted, personal commitment (CDAS), self-efficacy (DRSEQ-R), and family contextual factors (MAAQ) were shown to be associated with less alcohol consumption for students. Despite this, the hypothesised PD model proved to be more predictive of those students who abstained from alcohol or those engaging in binge drinking versus students engaging in responsible drinking behaviour. The final chapter will discuss how the current study findings relate to the PD literature as well as university student alcohol consumption literature, and examines implications for practice.

Chapter 5

Discussion

There is a disproportionate amount of research that focuses on students within the university setting who choose to engage in binge drinking behaviour [defined as five drinks in a row for men or four drinks in a row for women (NIAAA, 2002b)], than those students who choose to limit their drinking behaviour (Epler et al., 2009; Johnson & Cohen, 2004; Walters et al., 2000; Wechsler et al., 2002; Wechsler et al., 1999). Likewise, none of the past studies that have examined students who are able to curb their alcohol consumption have investigated it from a PD perspective, and in addition to this, a very limited amount of student drinking research has focused on the drinking behaviour of Atlantic Canadian students (Gliksman et al., 2003). This current exploratory study aimed at expanding the PD literature, as well as, the student alcohol consumption literature, to include an examination of Atlantic Canadian student health. Positive deviants are defined as those individuals who are able to deviate from the negative normative behaviour of the referent group. Heavy drinking within the university culture has been a long standing norm of this population, with students often overestimating the alcohol consumption of their fellow students (Arbour-Nicitoplous, 2010; Perkins, 2007). However, there is a long list of negative consequence associated with this type of behaviour (ACHA, 2008; Carey, Scott-Sheldon et al., 2007; NIAAA, 2002b), enabling it to be referred to as a negative behaviour. With the high number of consequences and risks associated with this normative behaviour and the poor efficacy of past prevention programs to reduce the number of students who engage in binge drink behaviour (Dowdall, 2009), it is important to develop a better understanding of this issue as a whole. The objective of

the present study was to learn if the variables identified within the PD sexual health

and delinquency research, that have been shown to maintain positive behaviour, were

also motivating factors for students who choose to limit their alcohol consumption.

Taking into account that many students on-campus are able to curb their drinking

behaviour (ACHA, 2008; Adlaf et al., 2004), the current study hoped to contribute to

current literature and provide an alternative framework to look at the prevalent issue

of heavy alcohol consumption behaviour within the university population. A more

holistic means of looking at the issue may lead to better intervention programming,

education, and perhaps policy making in the future, for a healthier and safer university

experience.

Personal Commitment

The results from the study showed that a relationship did exist between the

proposed PD variable personal commitment and students' reported drinking

behaviour, such that higher personal commitment was associated with less drinking,

which was consistent with our proposed hypothesis. This variable was assessed by

investigating a student's personal commitment to the concept of responsible drinking.

Results showed that students who reported limited drinking behaviour were more

likely to endorse responsible alcohol-related behaviours and therefore had a

responsible attitude toward the use of alcohol. This finding is consistent with the PD

literature. Babalola et al. (2006) found that youth who did not take part in the group

norm of high-risk sexual activity were motivated by their personal commitment to the

ideal of waiting to engage in high-risk sexual activity. Likewise, Wolfzorn et al.'s

(2006) study also found that students' personal commitment to obtaining personal

goals through legitimate and ethical means discouraged them to take part in unethical or criminal behaviour.

Self-Efficacy

As well, the study showed that a relationship existed between the proposed PD variable of self-efficacy and students' reported drinking behaviour, such that higher self-efficacy was associated with less drinking, which was again consistent with our proposed hypothesis. Students' perceived self-efficacy to refuse drinking alcohol within three contexts (i.e., social pressure, emotional relief and opportunistic) was measured. Students who reported limited drinking behaviour also indicated a higher self-efficacy to refuse drinking across the three contexts. This result is consistent with findings from the PD literature. Youth in the Babalola et al. 2002 and 2006 studies were found to be motivated by their perceived self-efficacy to refuse sex and use condoms with potential sexual partners. This was also seen in the Wolfzorn at al. (2006) study in which students' self-efficacy to obtain life goals though ethical and legitimate means was correlated with the absence of delinquent behaviour in their life. The finding in the current study is also consistent with the results found in the drinking literature that focused on investigating individuals' motivating factors for limiting their drinking behaviour. Studies from this literature identified self-control as a motive for abstaining or decreasing one's drinking (Greenfield et al., 1989; Reeves & Draper, 1984).

Parental Influence

Finally, the study showed that a relationship existed between the proposed PD variable of parental influence and students' reported drinking behaviour, such that higher parental influence was associated with less drinking, which was consistent with

our proposed hypothesis. Parental influence was measured through family constraints. Students who limited their binge drinking behaviour indicated a higher motivation to do so based upon family constraints (i.e., "my family may get upset if I drink") and this finding is consistent with PD literature. Babalola et al. 2002, 2005 and 2006 studies find that youth abstained from high-risk sexual behaviours due to parental influence, such as a father living in the same household, and youth perceptions of family disapproval. Wolfzorn et al. (2006) also found their positive deviate youth to be motivated by the fact that the students did not want to disappoint family. These findings can also be seen in the drinking literature examining the reasons why students limit their drinking behaviour, such as parental disapproval (Reeves & Draper, 1984; Stritzke & Butt, 2001) and regard for parent authority (Greenfield et al., 1989).

Years in University, Living Arrangements, Athleticism, and Alcohol Consumption

A relationship did exist between the identified demographic variables and students' drinking behaviour such that more years spent in university, off-campus living arrangements and non participation in university athletics were associated with less drinking, which is consistent with our proposed hypotheses. Years spent in university is related to age, and studies have shown that while students within the first couple of years of university tend to consistently engage in heavy alcohol consumption (Gliksman et al., 2003; Wechsler, Isaaz, Grodstein, & Sellers, 1994) this steadily declines thereafter (Dawson, Grant, Stinson, & Chou, 2004; Muthen & Muthen; 2000). As well, students living on-campus have been show to consume more alcohol than those students living off-campus (Gliksman et al., 1997; Gliksman et al., 2003; Presley, Meilman, & Leichliter, 2002) and students who participate in athletics

seem to be associated with heavier drinking behaviour (Gliksman et al., 2003; Meilman, Leichliter, & Presley, 1999; Presley et al., 2002). Research that focuses on students in their first years of university, those living on-campus and those involved in athletics activities that are able to resist heavy drinking may shed insight into why alcohol consumption is higher in these university sub-populations.

Predictive Model of the PD Variables

This current study aimed to expand the PD literature to include Canadian student health. The objective of the present study was to learn if the PD variables identified within this developing field were also motivating factors for students who choose to limit their alcohol consumption. Even though the results showed that a relationship did exist, such that higher personal commitment, self-efficacy and regard for parental influence were associated with less drinking, which would be consistent with our proposed hypotheses, our predictive model was not fully consistent with it. Our predictive model was most useful in classifying other levels of alcohol consumption (i.e., binge drinkers and current abstainers rather than limited drinkers). Of all the PD variables predicted, our personal commitment measure (CDAS) and our self-efficacy for opportunistic contexts [DRSEQ-R (Opportunistic)] were the only two found to predict limited drinker group membership. These results provide some support for what has been found in the previous PD literature (Babalola et al., 2002, Babalola et al., 2005; Babalola et al., 2006; Wolfzorn et al., 2006), and also in studies that have examined the reasons university students limit their drinking behaviour (Greenfield et al., 1989; Slicker, 1997). These findings are also consistent with emerging literature that focuses on knowledge-attitude-behaviour (KAB) change models and responsible drinking. One recent study looked at the psychological factors

associated with students' drinking intentions, and found that their perceived ability to refuse binge drinking in a variety of situations (i.e., at a hockey game or party), was predictive of their intention not to binge drink in the coming month (Gagon, Tessier, Cote, April, & Julien, 2012). As well, an early study that investigated the motivational factors for binge drinkers also found that control was predictive of binge drinkers such that, students who engaged in the behaviour were less likely to believe that their drinking behaviour was under their control (Norman, Bennett, & Lewis, 1998). In addition to this, Gagon et al.'s, (2012) study found that students' moral norms were also predictive of their intention to not binge drink, such that those found to have a positive intention to not engage in binge drinking viewed it as a "question of principle or an issue that appeals to their sense of responsibility" indicating their personal commitment to the idea of not engaging in binge drinking (p. 529). These findings are also consistent with Amonini and Donovan's (2006) study which showed that moral norms were predictive of drinking such that those who had higher moral norms drank less and those who had lower moral norms drank more.

However, contrary to previous research, the remaining two self-efficacy variables, as well as the parent influence variable, were not found to be common predictors of students who self-reported as limited drinkers. This lack of parental importance is also seen in the responsible drinking literature. Gagon et al. (2012) looked at how students' subjective norms influences their intention to not binge drink and found that the perceived approval of parents held no bearing over students' intention to limit their alcohol consumption. This is also consistent with the results of the Cooke, Sniehotta, and Schuz's (2007) study which found that students' subjective norms had no predictive value when examining undergraduate students' intentions to

reduce binge drink behaviour. In addition to this, another study that investigated factors that influenced students' intentions to consume alcohol also showed that students with a higher intention to drink were more likely to mention family as disapproving of their drinking behaviour than students with a lower intention to drink (French & Cooke, 2012), which is consistent with our present findings.

Implications

Better understanding of why and how students choose not to engage in binge drinking can aid in tailoring more effective interventions and policies that work to promote these healthy perspectives. In 2007, the National Alcohol Strategy Working Group produced the document "Reducing Alcohol-related Harm in Canada: Toward a Culture of Moderation-Recommendations for a National Alcohol Strategy". It highlights the significant risk associated with alcohol consumption and emphasises youth as a high-risk group (Butt, Beirness, Gliksman, & Paradis, 2011). The paper puts forth a harm-reduction framework that promotes responsible drinking for individuals who decide to drink. The authors state that the purpose of putting forth these low-risk drinking guidelines (LRDG) is to emphasise to individuals, that by minimizing the amount of alcohol one consumes, you are also minimizing the associated risks involved with heavy alcohol consumption not only for yourself but for the community as well.

The consequences associated with binge drinking are many and pervasive across students. Carey, Scott-Sheldon., et al. (2007) notes that problems associated with heavy drinking include social and academic problems, injury, assault and even death. Students within their study, from Memorial University, who displayed binge drinking behaviours listed interference with school, blackouts, regretful of their

actions, and unprotected sex as the main consequences associated with their drinking behaviour (ACHA, 2008). According to NIAAA's (2002b) manual, which integrated several databases across the U.S. to complete an overall picture of annual high-risk drinking consequences that occur among university aged students, consequences related to binge drinking can include: academic problems including missed classes, falling behind, doing poorly on exams and papers, and receiving lower grades, unintentional injury while under the influence, sexual assaults including being date raped while intoxicated, unprotected sex where students sometimes cannot remember if consent was given or not, property damage, police or campus security involvement and alcohol related property damage. Within the LRDG report the type of risk one is exposed to dictates which guideline the individual should adhere to. Most of the consequences for students listed above would fall under the LRDG's category of "short term harms," risks that may occur during the drinking event or after (Butt et al., 2011, p. 6) and therefore this is the guideline that is most relevant for the population under investigation. This guideline states that one can reduce their short-term risks by "choosing safe situations and restricting your alcohol intake" by staying within these proposed limits "[t]hree standard drinks in one day for a woman" and "[f]our standard drinks in one day for a man" (Butt et al., 2011, p. 8). In addition to this, under this guideline it is recommended that alcohol consumption should also occur with meals and "not on an empty stomach," that one should consume "no more than 2 standard drinks in any 3 hour period," to alternate alcoholic beverages with non-alcoholic, caffeine free drinks, and to "avoid risky situations and activities" while engaged in alcohol consumption (Butt et al., 2011, p. 8). It has been estimated that if Canadians followed these LRDG that 4,600 alcohol-related deaths could be prevented annually

(Stockwell, Butt, Beirness, Gliksman, & Paradis, 2011). To reduce the consequences of high-risk drinking behaviour, policy must dictate effective intervention efforts (Giesbrecht, Stockwell, Kendall, Strang, & Thomas, 2011). University policies regulate the alcohol consumption of students on campus (Bunjevcevic & Johnson, 2005). Therefore, incorporating LRDG into the university policies can help push interventions found to promote low-risk drinking.

Models, such as the KAB change models and our proposed PD model can be used to help support and guide alcohol-related research, intervention (Amonini & Donovan, 2006) and policy. The variables under investigation within these types of studies are "learned and therefore can be influenced" (Amonini & Donovan, 2006, p. 284). PD assumes the solution to any human problem already exists within a community or organization (Babalola et al., 2006), and that these positive behaviours are thought to be acceptable and sustainable and therefore can be transferred, in a low cost manner, to the group who displays the normative behavioural pattern (Babalola et al., 2006; Marsh et al., 2006). Interventions that incorporate and teach the variables that are found to differentiate students who are able to limit their binge drinking behaviours from those students who cannot, may have great impact on the intervention measures used with students who choose to engage in heavier alcohol consumption. Taking into account the results of this present study, interventions that focus on specific self-efficacy and personal commitment factors that differentiate the positive deviant students (i.e., those who are able to limit their binge drinking behaviour) from those who engage in binge drinking behaviour may help those binge drinking students to not engage in this level of alcohol consumption. To aid students in refusing to engage in binge drinking behaviour interventions could focus on

helping students to develop their self-efficiency (i.e., a person's belief about their ability and capacity to accomplish a task or to deal with the challenges of life) during opportunistic situations. Developing effective strategies and techniques to help students limit their drinking behaviour when they are watching television, at lunch, feeling nervous, when their spouse/partner or friend is drinking, when alone, or at a bar or club, could potentially help them decrease their overall alcohol consumption. In addition to this, interventions that also focus on fostering students' commitment to the idea of not engaging in binge drinking behaviour would also be suitable. Helping students to connect their alcohol consumption to their sense of responsibility and promoting responsible alcohol-related behaviour such as, encouraging students to set limits on how many drinks they will have during a night out or at a party, or never drinking alcohol primarily to get drunk, may also help students curb their binge drinking behaviour.

Indeed, these findings are in line with the current intervention recommended to be used with students who engage in binge drinking behaviour at the post-secondary level. It has been shown that, within university health care services, when counselling for heavy alcohol consumption, the most researched intervention that has been shown time and time again to reduce alcohol consumption with this specific age group is the Brief-Motivational Intervention (Ginter & Choate, 2003, Carey, Scott-Sheldon, et al., 2007). A series of recent studies conducted by Carey and her colleagues (Borsari & Carey, 2005; Carey, Carey, Maisto, & Henson, 2006; Carey, Henson, Carey, Maisto, 2007) focus on the use of Brief-Motivational Intervention with this population and showed that this intervention produced significant findings for the reduction of binge drinking. Brief-Motivational Intervention counselling is the

most widely recommended intervention strategy to be used in the high-volume educational setting, such as a university counselling centre (NIAAA, 2002a). This is a time-limited approach with a therapeutic focus on changing existing behaviours and increasing a student's willingness to participate in treatment (NIAAA, 2002a). The goal of the intervention is to reduce the alcohol use to low-levels (NIAAA, 2002a). Motivational interviewing is aimed at "initiating behavior change by helping clients to resolve ambivalence" (Miller, 1996, p. 835). It is client-centered and focuses on helping students realize that they need to change their behaviour. The counsellor must build discrepancy for the client, highlight the negative thoughts and feelings the students have about their alcohol use and emphasize how this usage conflicts with their achievement of their personal goals. It is here that our predicted PD variables could be incorporated into the brief-motivation intervention. Encouraging and building students' self-efficacy to refuse drinking during opportunistic situations and promote their personal commitment to the ideal of responsible drinking, may add power to this intervention helping students limit their drinking behaviour.

Other potential predictors also need to be examined in the model in order to identify further students who engage in limited drinking behaviour. While findings from the KAB change model studies discussed above provide value and insight into the issues in which they investigate, and corroborate the hypothesized variables identified through the PD literature, our predictive PD model was still better at predicting abstaining and binge drinking behaviours. More research is needed to identify additional factors which can help better explain and expand our understanding of responsible drinking behaviour. Indeed, other variables, within the KAB change model studies, have been found to have predictive value in explaining

students' intentions to reduce their alcohol consumption including, attitude (Cooke et al., 2007; Gagon et al., 2012; Norman et al., 1998), anticipated regret (Cooke et al., 2007), legitimacy perception (Gagon et al., 2012) and self-affirmation (Scott, Brown, Phair, Westland, & Schuz, 2013). Using this knowledge, we may inform future PD research within this area, by incorporating these identified variables and also uncovering additional variables that may account for, and help explain, the variance left over from our PD model.

Study Limitations

The major limitation to this study was the exploratory nature of this investigation. While a plethora of research exists on university students' drinking behaviour, most studies focus on students who are engaged in the behaviour. Only a small amount of research has focused on students who are actively involved in limiting their drinking behaviour, and those studies have not investigated this sub-population from a PD framework. In addition to this, while the PD literature is growing, it too is still a relatively small body of research, with no particular studies within the field focusing on examining students' drinking behaviours. Therefore, this study was relatively novel from both the university drinking behaviour and PD standpoint.

A second limitation in this study was the sampling method used. While the sample size for this study was ample (541 participants) the students were gathered through a non-random, convenience sampling strategy. Students were recruited through seven campus Listservs. In order for students to receive the study's invitational email they had to be active members of the Listservs and be subscribers to their service. As well, all students attended one Atlantic Canadian university; research

has shown that university students engage in alcohol consumption above the national

average (Adlaf et al., 2004; Gliksman et al., 2003; Paradis et al., 2010). In addition to

this, a large portion of our sample size consisted of female participants (76.2%),

which is not consistent with the average percentage of females enrolled in

postsecondary institutions in Canada in the past decade (56.5%) (Statistic Canada,

2013). Therefore these students may not be an adequate representative of a typical

university student across the nation, or even in other Atlantic Canadian universities

and therefore results cannot be generalized to the general university student

population.

The last limitation for this study was the self-reporting aspect of the data

gathering process. Memory bias and response bias can be applied to self-administered

and reported questionnaires. Participants would be responsible for divulging accurate

information during the completion of the questionnaire. However, alcohol has been

shown to affect memory loss therefore this could impact the participants' recall in

terms of their actual and perceived drinking behaviour. As well, heavy alcohol

consumption has shown to be the normality within university sub-culture (Adlaf et al.,

2004; ACHA, 2008; Gliksman, Adlaf, Demers, & Newton-Taylor, 2003), and in

addition to this the majority of students over-estimate their fellow students' alcohol

consumption (Arbour-Nicitopolous et al., 2010; Campo et al., 2003; Perkins, 2007;

Pollard et al., 2000). Therefore, memory loss and the potential for students to respond

in a socially desirable way (i.e., conforming to the normative drinking behaviour)

could have affected students' self-responses. It was hoped that the utilization of pre-

established questionnaires within the study, which had previously been tested and had

shown good reliability, may have helped offset some of this potential limitation and added strength to the current study.

Conclusion

Students' heavy alcohol consumption continues to be a prevalent problem on campus (Adlaf et al., 2004; Wechsler et al., 2002; Wechsler et al., 1999). Although there has been significant research that has focused on students who engage in binge drinking behaviour, prevention programs have shown little usefulness in deterring students to engage in this high-risk behaviour (Dowdall, 2009; Wechsler et al., 2002; Wechsler et al., 1999). The PD approach is a newer perspective that has emerged in recent literature, which focuses on finding potential solutions to persisting and difficult problems, such as student heavy alcohol consumption, by examining the factors that enable individuals to deviate from the negative norm of a population. The aim of the approach is then to generate potential solutions from these individuals that could potentially be applied to the proportion of the population that is most affected by the exiting problem (Babalola et al., 2006; Dura & Singhal, 2009; March et al., 2009).

This exploratory study extended the current PD and student drinking literature by investigating PD concepts that have been shown to be predictive of healthier sexual health behaviours in relation to students who choose to limit their drinking behaviour. Findings showed that some of the hypothesized PD variables were predictive of inhibiting alcohol use. However, the mixed results of the model highlight the need for more research that focuses specifically on students who are able to deviate from the perceived normative behaviour of university binge drinking. Findings also give hope to the usefulness of the PD model in terms of university

students' drinking. Interventions that promote a personal commitment to the idea of engaging in responsible drinking, and fostering self-efficacy to refuse drinking in opportunistic situations may prove to be effective in the delivery of student health care (i.e., intervention programs and wellness service) and also lend support to the development of limited alcohol use policies on campus. The results also suggest, however, that other variables may provide value in the prediction of responsible alcohol consumption. Future PD studies into this area could focus on further examination of the variables highlighted in this study, as well as investigate additional proposed factors, to better understand how they may contribute to students' alcohol use and how they may be used to deter excessive alcohol consumption.

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Appendix A: Listservs

Listserv	Address
Arts listserv	arts@mun.ca
Graduate student listserv	gsu@gsumun.ca
MUNSU clubs and society listserv	studentlife@munsu.ca
Answers listserv	mmitchell@mun.ca
Undergraduate Education Student listserv	munedu@mun.ca
Graduate Education Student listserv	tinah@mun.ca
Residence	dwaynet@mun.ca

Appendix B: Invitational Email

Take part in a questionnaire for a chance to win a $50 Wal-Mart gift card!

You are invited to take part in a research project, entitled "University Students and Alcohol Use: A Positive Deviant Perspective", being conducted by Maryanne Tucker (Graduate Student) and Dr. Greg Harris (Associate Professor at Memorial University).

The purpose of this study is to learn about the motivating factors of students who

choose to limit their alcohol consumption. In order to participate, you must be at least

17 years of age and a student currently enrolled in Memorial University.

There will be no identifying information on the questionnaire and all of your responses on the questionnaire will be **completely confidential.** The questionnaire will take approximately 15-25 minutes to complete and involve questions related to: your typical drinking behaviour, your attitude toward drinking, your ability to resist drinking in different situations, and your personal reasons for limiting your own drinking

Participants who complete the questionnaire will also be eligible to enter their name in a draw to win a $50.00 Wal-Mart gift card.

Click on the link below if you are interested in learning more about the study and potentially participating in the study.

http://www.surveymonkey.com/s/FPPHMQ7

Appendix C: Consent Form

CONSENT FORM

You are invited to take part in a research project, entitled "University Students and Alcohol Use: A Positive Deviant Perspective", being conducted by Maryanne Tucker (Graduate Student) and Dr. Greg Harris (Associate Professor at Memorial University). If you would like more detail about something mentioned here, or information not included here, you should feel free to ask by using the contact information below.

The purpose of this study is to learn about the motivating factors of students who choose to limit their alcohol consumption. In order to participate you must be at least 17 years of age and a student currently enrolled in Memorial University.

The study will include: (a) reading over this informed consent form and (b) completing the questionnaire that follows this form. All of your responses on the questionnaire will be **completely confidential**. The questionnaire will take approximately 15-25 minutes to complete and involve questions related to: your typical drinking behaviour, your attitude toward drinking, your ability to resist drinking in different situations, and your personal reasons for limiting your alcohol intake. It is important for you to know that your participation is completely voluntary and if at any time during the completion of the questionnaire you feel uncomfortable, you are free to stop. Discontinuation, at any time, will not influence your current educational career or relationship with Memorial University.

Strict confidentiality will be maintained with the questionnaire. There will be no identifying information on the questionnaire, and no IP or email addresses will be linked to the questionnaire. No one, including the researchers at Memorial University, will be able to link your data with you personally. Electronic data will be stored in password electronic format on an encrypted server and hardcopy data will be stored in a locked file cabinet at Memorial University and will be analyzed by one of the members of the research team (i.e., Maryanne Tucker). It is also important for you to know that this questionnaire was developed through SurveyMonkey which is an on-line survey company located in the United Sates and as such is subject to U.S. laws.

A general summary of the study results will be made available for those interested. Furthermore results will be made available to any individual participant 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 also no foreseen costs or negative consequences to your participation in this study.

If you decide to proceed, in no way does this waive your legal rights nor release the investigators, sponsors, 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 new information throughout your participation. Your agreement to participate also provides permission for the researchers to use the data in presentations, published articles, and in any other future publications. The proposal for this research has been reviewed by the Interdisciplinary Committee on Ethics in Human Research and found to be in compliance with Memorial University's ethics policy. 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 (709) 864-2861.

Participants who complete the questionnaire will be eligible to enter their name in a draw to win a $50.00 Wal-Mart gift card. To be eligible for the draw, you must email your name and address to the email address that appears on the last page of the questionnaire. Since this email will be sent independently from your questionnaire, your anonymity will be ensured. Only one entry per student will be accepted.

Thank you,

Maryanne Tucker [709-690-4634 or matucker@mun.ca]

Dr. Greg Harris [709-864-6925 or gharris@mun.ca]

I have read and understand the information provided and consent to participate in this study:

    A. Yes
    B. No