

PERSONALITY AND MOTIVES FOR ALCOHOL USE IN ABORIGINAL
ADOLESCENTS: A CULTURALLY RELEVANT APPROACH TO ALCOHOL
ABUSE EARLY INTERVENTION

by

Christopher John Mushquash

Submitted in partial fulfilment of the requirements
for the degree of Doctor of Philosophy

at

Dalhousie University
Halifax, Nova Scotia
July 2011

© Copyright by Christopher John Mushquash, 2011

DALHOUSIE UNIVERSITY
DEPARTMENT OF PSYCHOLOGY

The undersigned hereby certify that they have read and recommend to the Faculty of Graduate Studies for acceptance a thesis entitled “PERSONALITY AND MOTIVES FOR ALCOHOL USE IN ABORIGINAL ADOLESCENTS: A CULTURALLY RELEVANT APPROACH TO ALCOHOL ABUSE EARLY INTERVENTION” by Christopher John Mushquash in partial fulfillment of the requirements for the degree of Doctor of Philosophy.

Dated: July 29, 2011

External Examiner: _____

Research Supervisor: _____

Examining Committee: _____

Departmental Representative: _____

DALHOUSIE UNIVERSITY

DATE: July 29, 2011

AUTHOR: Christopher John Mushquash

TITLE: PERSONALITY AND MOTIVES FOR ALCOHOL USE IN
ABORIGINAL ADOLESCENTS: A CULTURALLY RELEVANT
APPROACH TO ALCOHOL ABUSE EARLY INTERVENTION

DEPARTMENT OR SCHOOL: Department of Psychology

DEGREE: PhD CONVOCATION: October YEAR: 2011

Permission is herewith granted to Dalhousie University to circulate and to have copied for non-commercial purposes, at its discretion, the above title upon the request of individuals or institutions. I understand that my thesis will be electronically available to the public.

The author reserves other publication rights, and neither the thesis nor extensive extracts from it may be printed or otherwise reproduced without the author's written permission.

The author attests that permission has been obtained for the use of any copyrighted material appearing in the thesis (other than the brief excerpts requiring only proper acknowledgement in scholarly writing), and that all such use is clearly acknowledged.

Signature of Author

TABLE OF CONTENTS

List of Tables.....	vii
List of Figures.....	viii
Abstract.....	ix
List of Abbreviations and Symbols Used.....	x
Acknowledgements.....	xi
Chapter 1. Introduction.....	1
Chapter 2. The Structure of Drinking Motives in First Nations Adolescents in Nova Scotia.....	8
Method.....	10
Participants.....	10
Measure.....	10
Data Analysis.....	11
Results.....	12
Discussion.....	13
Chapter 3. A Qualitative Examination of Drinking Motives in First Nations Adolescents in Nova Scotia.....	19
Method.....	19
Participants.....	19
Apparatus.....	20
Procedure.....	20
Results and Discussion.....	22
Chapter 4. Personality and Drinking Motives in First Nations Adolescents.....	29
Method.....	32

Participants.....	32
Measures.....	33
Alcohol Use and Heavy Episodic Drinking Questionnaire.....	33
Drinking Motives Questionnaire-Revised (DMQ-R).....	34
Rutgers Alcohol Problems Index (RAPI).....	35
Substance Use Risk Profile Scale (SURPS).....	36
Procedure.....	36
Results.....	39
Bivariate Correlations.....	42
SURPS Personality Domains as Predictors of DMQ-R Drinking Motives.....	43
SURPS Personality Domains as Predictors of Heavy Episodic Drinking Behaviour and Problems.....	44
Discussion.....	45
Chapter 5. An Alcohol Abuse Early Intervention Approach with Mi'kmaq Adolescents.....	55
Method.....	57
Participants.....	57
Measures.....	58
Procedure.....	63
Results.....	65
Discussion.....	67
Chapter 6. General Discussion.....	77
References.....	86

Appendix A. Drinking Motives Questionnaire – Revised.....	103
Appendix B. Rutgers Alcohol Problem Index.....	105
Appendix C. Substance Use Risk Profile Scale.....	107
Appendix D. The Comprehensive Drinker Profile.....	109
Appendix E. Copyright Permissions.....	110

LIST OF TABLES

Table 2.1. Structure matrix for Oblimin-rotated, four-factor solution ($N = 153$ drinkers).....	17
Table 2.2. Structure matrix for Oblimin-rotated, three-factor solution ($N = 153$ drinkers).....	18
Table 4.1. Standardized factor loadings for the three-factor and four-factor models.....	51
Table 4.2 Bivariate correlations between SURPS subscales and orthogonal drinking motive factor scores ($N = 174$).....	52
Table 4.3. Bivariate correlations between SURPS subscales, sex, heavy episodic drinking, and RAPI scores (pairwise deletion).....	53
Table 4.4. Hierarchical Regression Analysis Predicting Positive Reinforcement (Enhancement/Social) drinking motives; Conformity drinking motives; Coping drinking motives; heavy episodic drinking frequency; and RAPI Scores.....	54

LIST OF FIGURES

Figure 5.1: Mean (and SD) drinking Frequency as a function of group (intervention vs. non-intervention) and time (pre-treatment baseline vs. four-month post-treatment follow-up).....	72
Figure 5.2: Mean (and SD) frequency of heavy episodic drinking as a function of group (intervention vs. non-intervention) and time (pre-treatment baseline vs. four-month post-treatment follow-up).....	73
Figure 5.3: Mean (and SD) alcohol-related problems on the RAPI as a function of group (intervention vs. non-intervention) and time (pre-treatment baseline vs. four-month post-treatment follow-up).....	74
Figure 5.4: Alcohol abstinence (% last 4 months) as a function of group (intervention vs. non-intervention) and time (pre-treatment baseline vs. four-month post-treatment follow-up).....	75
Figure 5.5: Recent Marijuana Use (% using in last 30 days) as a function of group (intervention vs. non-intervention) and time (pre-treatment baseline vs. four-month post-treatment follow-up).....	76

ABSTRACT

There are high levels of alcohol abuse and associated problems among Aboriginal youth in Canada. In order to understand high-risk adolescents' relationships with alcohol, four inter-related questions were explored: 1) How do youth at particular risk of alcohol abuse, understand their reasons for alcohol use?; 2) How does personality relate to reasons for drinking for First Nations adolescents?; 3) Can established alcohol abuse brief early interventions be effectively tailored to meet the needs of high personality risk First Nations adolescents?, and 4) Do interventions developed specifically for First Nations youth with varying personality risk characteristics and maladaptive motives for alcohol use effectively reduce drinking behaviour and problems associated with alcohol use? The factor-structure of Cooper's (1994) motivational model of adolescent alcohol use was examined among a group of Mi'kmaq adolescents. Rather than the hypothesized four-factor model, a three-factor model better explained these data, where Enhancement and Social motives combined into a single motive reflective of positive reinforcement. A qualitative follow-up study showed that these youth had a tendency toward drinking for Enhancement motives rather than for Social affiliation. Next, a quantitative examination of the relationships between personality factors and motives for alcohol use in First Nations adolescents showed consistency with majority culture findings; Impulsivity and Sensation Seeking was associated with Enhancement motives for alcohol use; Anxiety Sensitivity was associated with Conformity motives; and Hopelessness was associated with Coping motives. Finally, an alcohol early intervention, which combined promising Western scientific approaches with traditional knowledge, was delivered to at-risk First Nations youth. Compared to eligible students who did not participate in the intervention program, intervention completers drank less frequently, engaged in less heavy episodic drinking, had lower levels of alcohol-related problems, were more likely to abstain from alcohol use, and reduced their marijuana use at four months following the interventions relative to their levels at pre-treatment baseline. First Nations youth can be empowered through pride in their heritage and ways of life, to find balance within themselves through learning healthy coping skills to deal with their own unique predispositions to heavy drinking and alcohol-related problems.

LIST OF ABBREVIATIONS AND SYMBOLS USED

Adj. R^2	Adjusted multiple correlation squared
AIC	Akaike information criterion
APA	American Psychiatric Association
AS	Anxiety Sensitivity
BIC	Bayes information criterion
B	Unstandardized multiple regression coefficient
CBT	cognitive-behavioural therapy
CFA	Confirmatory factor analysis
CFI	Comparative fit index
CI	Confidence interval
CON	Conformity
COP	Coping
d	Cohen's effect size statistic
df	Degrees of freedom
<i>DSM-IV-TR</i>	<i>Diagnostic and Statistical Manual of Mental Disorders (4th ed., text revision)</i>
DMQ	Drinking Motives Questionnaire
DMQ-R	Drinking Motives Questionnaire-Revised
ENH	Enhancement
F	Fisher's F ratio
HED	Heavy episodic drinking
HOP	Hopelessness
IMP	Impulsivity
M	Mean
N	Total sample size
n	Subsample size
<i>n.s.</i>	Nonsignificant
p	Probability of Type I error
r	Pearson product-moment correlation
R^2	Multiple correlation squared
RAPI	Rutgers Alcohol Problem Index
RCMP	Royal Canadian Mounted Police
RCT	Randomized Controlled Trial
RMSEA	Root mean square error of approximation
SD	Standard deviation
SOC	Social
SRMR	Standardized root mean square residual
SS	Sensation Seeking
SURPS	Substance Use Risk Profile Scale
t	Computed value of t test
χ^2	Computed value of a chi-square test

ACKNOWLEDGEMENTS

I am grateful to Drs. Sherry Stewart and Patrick McGrath for their mentorship and support throughout the years. Besides being exceptionally intelligent, they are kind and thoughtful. Their dedication to my training has been wonderful and I am thankful for the opportunity to learn from these outstanding people. I also appreciate the support and friendship of Dr. Nancy Comeau. Her keen interest in people and her ability to appreciate the world has provided me with many valuable lessons. I wish to thank Dr. Sophie Jacques for her support and ideas throughout the completion of this research. Her perspectives have greatly strengthened this work. I also wish to thank Dr. Sean Barrett for his guidance in the development of this dissertation. Thanks to Dr. Simon Sherry, who served as departmental representative at my defense. His keen observation and statistical knowledge was much appreciated. Thank you to Dr. Laurence Kirmayer for his participation as my external examiner. His ideas and feedback helped push my thinking to another level. Reflecting back, it is clear how fortunate I am to have worked with so many great thinkers.

I want to acknowledge the financial support that has allowed me to pursue this research, and my studies. Pays Plat First Nation, the Indigenous Health Research Development Program, the Canadian Health Services Research Foundation/Canadian Institutes of Health Research Genesis Award, the Atlantic Aboriginal Health Research Program, and National Network for Aboriginal Mental Health Research all provided scholarship funding. Health Canada, the RURAL Centre, Canadian Institutes of Health Research and the Institute of Aboriginal Peoples' Health all provided funding in one way or another that helped me conduct this research.

I gratefully acknowledge Mr. Brian McLeod of Strong Heart Teaching Lodge for his collaborative spirit, and all of the communities who partnered on this work. I am indebted to the school administrators, teachers, guidance counselors, policing partners, and youth who contributed their time and stories to this work as well as Elders and other community members who have taught me so much.

I am thankful to my wife, Aislin, for her support and inspiration, as well as my family and friends.

CHAPTER 1. INTRODUCTION

In Canada, there are high levels of alcohol abuse and its associated suffering and tragedy among Aboriginal peoples, especially youth (Kirmayer, Brass, & Tait, 2001); the abuse of alcohol is consistently reported as a major problem in First Nations communities (Health Canada, 2003). These communities are well aware of the negative effect that alcohol has on the health of their people. Profound change brought upon Aboriginal peoples through colonialism and aggressive assimilation policies have led to tragic health disparities (Loppie-Reading & Wein, 2009), including the abuse of alcohol. There is a need for culturally relevant intervention programming that is designed to address the issue of alcohol abuse within Aboriginal communities and for prevention programming to intervene early in preventing alcohol problems in Aboriginal young people.

Aboriginal peoples in Canada were first exposed to alcohol by explorers, fur traders, and merchants, beginning in Eastern regions during the 1670s (Brady, 2000). The misuse of alcohol has created many challenges for Canada's Aboriginal peoples and has greatly impacted the health and well being of our communities. These challenges are well evidenced through epidemiological data. For example, the proportion of Aboriginal people who report having five or more drinks on one occasion, on a weekly basis (16.0%), is double that of those in the general Canadian population (7.9%). The largest difference is among females where 10.2% of Aboriginal females reported heavy drinking on a weekly basis compared to 3.3% in the general Canadian population (Health Canada, 2009). Perhaps most importantly – Aboriginal communities have long recognized the difficulties created through alcohol abuse.

There is significant cultural diversity among the Canadian Aboriginal population. For example, there are 11 different languages with more than 58 dialects (Frideres, 1993). The Assembly of First Nations, the national representative organization of the First Nations in Canada, reports that there are over 630 First Nation communities in Canada (Assembly of First Nations, 2008). Aboriginal people can include Indian, Métis, and Inuit peoples, as recognized in the Constitution of Canada (Section thirty-five of the Constitution Act, 1982). The most recent census of Canada found that 1,172,790 people self-identified as having an Aboriginal identity (Statistics Canada, 2006). This represents 3.7% of the total Canadian population.

Among the majority culture, those who initiate drinking in early adolescence are more likely to increase their drinking, to experience alcohol-related problems during the teenage years, and are at greater risk for lifetime alcohol abuse or dependence than those who initiate drinking later (Grant & Dawson, 1997; Hawkins et al., 1997). The median age of the total population of Aboriginal people in Canada is about 27 years (about 13 years lower than the general population; Statistics Canada, 2008). The population of First Nations people under the age of 30 years was 61.1% in 2000 compared with 38.8% for the Canadian population in 2001 (Statistics Canada, 2001). There is a need to ensure the health of this quickly growing proportion of Aboriginal people who are vital for the future of Canada. Intervention approaches must take into account risk factors at the individual and community levels that are associated with risky drinking patterns.

One approach could be using a holistic model of health. Within an interconnected and holistic framework, through the maintenance of balance across the *physical*, *mental*, *emotional*, and *spiritual* domains, an individual can be healthy (Mussel, 2005). The

awareness and understanding by our ancestors as they observed relationships, and developed this model of health is remarkable. While it is now commonly accepted that wellness operates within a holistic framework (e.g. determinants of health), this knowledge is a relatively recent development in Western medicine and in particular, mental health. Beck's (1976) cognitive theory of depression further led to the understanding of the relationships between thoughts, feelings, and actions from which cognitive-behavioural therapy (CBT) emerged. A cursory comparison of these two models (holistic vs. CBT) shows that there are conceptual similarities between the mental (cognitive), emotional (emotional), and physical (behavioural) categories. While Beck's (1976) model is not specifically a wellness-model, the interconnectedness of thoughts and feelings provides a useful analogy.

The convergence of these two models of health creates research conditions with many potential benefits for Aboriginal people. First, CBT is a well-established, empirically tested mode of therapy that includes assessment, formulation, and treatment, with emphasis on the iterative nature of evidence-based practice. That is, a highly individualized, formulation-driven approach is continually evaluated, re-assessed, and re-formulated as treatment proceeds (Persons, Davidson, & Thompkins, 2001). While the purpose here is not to present CBT methods, the theoretical model underpinning the approach is important because aspects of it are analogous to the notions of balance and wellness within the intervention described in Chapter 5 of this dissertation.

Cognitive-behavioural theory is based on the idea that thoughts, feelings, and actions are connected. That is, cognitions lead to emotions, which in turn lead to behaviours. While we are not in control of the outside world, we can learn to manage our

thoughts in such a way as to lead to less negative emotions and less likelihood of engaging in problematic behaviours. For example, suppose some individuals have learned to cope with feelings of depression and hopelessness by using alcohol. They might experience negative thoughts about their life, which in turn causes them to feel depressed and hopeless. Although alcohol use may temporarily alleviate their sadness (e.g., block ruminative thinking or provide mood enhancement), this alleviation is temporary. Depression may worsen after consumption, creating the conditions for further heavy drinking in attempts to cope. They drink to feel better but their alcohol use ultimately increases depressive thoughts and feelings. This cycle will continue until healthier coping skills are learned for managing or alleviating depression and hopelessness.

The evolution and future development of alcohol treatment for Aboriginal peoples will require a philosophical shift in underlying addiction treatment models. In the past, addiction prevention and treatment services in Aboriginal communities have relied solely on abstinence-based models; that is, services are based on moral and disease models of alcohol addiction. The treatment focus has operated under the assumption that the only alternative to problematic drinking is absolute abstinence from alcohol. This treatment philosophy is probably most familiar as the Alcoholics Anonymous or 12-step approach (Alcoholics Anonymous, 2001) where alcohol addiction is seen as a disease that a client has for life.

Alcoholics Anonymous encourages clients to partner with others in recovery, achieve spiritual growth, and abstain from alcohol use. While this treatment program has been successful for some Aboriginal people, many find the 12-step approach unsatisfactory and not congruent with their traditional Aboriginal beliefs. For example,

abstinence versus alcoholism creates a false dichotomy in which these two categories are mutually exclusive and exhaustive without acknowledgement or consideration of alternatives such as moderate drinking. As well, while the idea of surrendering to a higher power is premised on how a client conceptualizes that higher power, in practice, there is often a Christian-centric focus that may not be as adaptable to traditional Aboriginal spiritual beliefs for some people.

More recently, there has been discussion of prevention and treatment service development within Aboriginal communities based around the philosophy of harm reduction (Dell & Lyons, 2008). In this case, rather than moral or disease based models of addiction, harm reduction conceptualizes addiction as a behavioural disorder in which alcohol use exists on a continuum from abstinence to excess with moderate and controlled drinking as acceptable treatment outcomes (Marlatt & Witkiewitz, 2008). The goal in this approach is to reduce the *harms* associated with alcohol misuse in a way that is respectful of individuals' personal goals for treatment. This approach recognizes that abstinence may be the ideal outcome but that there are alternatives to reduce harm (van der Woerd, Cox, Reading, & Kmetc, 2010). Some Aboriginal groups feel that harm reduction is inconsistent with traditional beliefs and values. Others feel there are similarities between the philosophies of harm reduction and traditional values, such as respecting the choices of individuals, families, and communities, and accepting people "where they are at" (Dell & Lyons, 2008).

The research contained in this thesis involved a respectful collaboration between academic researchers and partners from Canadian Aboriginal communities. An important aspect of our respectful collaboration involved developing a culturally-relevant alcohol

early intervention that brought together Western and Aboriginal approaches synergistically. Rather than applying a “blanket” approach to intervention, we sought to examine the performance of underlying Western scientific models within our partnering communities and adapt them in a way that respected the diversity of Aboriginal adolescents’ motives for alcohol use and personality characteristics. Given that the Western scientific basis of the intervention approach is reliant upon Cooper’s (1994) model of motives for alcohol use, individual personality variables (Conrod, Pihl, Stewart, & Dongier, 2000; for example), and the relationships between motives for alcohol use and personality variables (Woicik et al., 2009), what follows is our exploration of the validity of this approach to alcohol early intervention among Aboriginal adolescents.

The methodology presented in this dissertation uses quantitative and qualitative research to pursue understanding of drinking patterns, contexts, and consequences particular to First Nations adolescents at whose personality characteristics place them at higher risk for alcohol abuse. While large-scale quantitative surveys are helpful for determining the incidence of drinking and comparing alcohol use behaviour patterns of teens, qualitative research approaches are also needed to capture important variations across adolescents’ diverse social interactions (cf. Phillips, 1998). This methodology aimed to take into account the contexts in which adolescents live and develop (i.e., broad social contexts in which alcohol campaigns are frequently aimed at youth) as well as self-perceived reasons for drinking as expressed in their own words.

Further, this dissertation details how we combined results from quantitative and qualitative investigations to develop a unique set of harm-reduction interventions for preventing alcohol misuse in at-risk First Nations teenage drinkers, which were

meaningful to the lives of these adolescents (see also Comeau, 2004; Comeau et al., 2004). Together, the studies reported in this dissertation were designed to add insight into our understanding of high-risk adolescents' relationships with alcohol. I explored four inter-related questions: 1) How do these youth, at particular risk of alcohol abuse, understand their reasons for alcohol use?; 2) How does personality relate to reasons for drinking for Aboriginal adolescents?; 3) Can established alcohol abuse brief early interventions be effectively tailored to meet the needs of high personality risk Aboriginal teens?, and 4) Do interventions developed specifically for Aboriginal youth with varying personality risk characteristics and maladaptive motives for alcohol use effectively reduce drinking behaviour and problems associated with alcohol use?

In Chapter 2, the factor-structure of Cooper's (1994) motivational model of adolescent alcohol use was examined among a group of Mi'kmaq adolescents. Chapter 3 presents a qualitative follow-up study that was designed to clarify findings from Chapter 2. Chapter 4 is a quantitative examination of the relationships between personality factors and motives for alcohol use in First Nations adolescents from communities across Canada. Chapter 5 describes a tailored alcohol early intervention for at-risk Aboriginal youth that combined promising Western, scientific approaches with traditional knowledge. Chapter 5 also presents some pilot data evaluating the intervention's effectiveness. Finally, Chapter 6 discusses the importance of developing appropriate, culturally-adapted interventions for Aboriginal adolescents.

CHAPTER 2. THE STRUCTURE OF DRINKING MOTIVES IN FIRST NATIONS ADOLESCENTS IN NOVA SCOTIA¹

Cox and Klinger (1998; 1990) proposed a framework for categorizing motives for drinking in which they recognized that people drink to obtain various valued outcomes of drinking. Cooper (1994) adapted this model and characterized drinking motives along two underlying dimensions reflecting the valence (which can involve positive or negative reinforcement) and source (internal or external) of outcomes that an individual might hope to achieve by drinking. What emerged was a four-factor model that crossed valence by source, whereby individuals may drink to obtain a positive outcome (positive reinforcement) or to avoid a negative outcome (negative reinforcement) and where they may drink to achieve an internal reward (e.g., change in affective state) or an external reward (e.g., change in social environment). Each of the four resultant factors represents a distinct motive for drinking (Enhancement, Social, Coping, and Conformity).

Enhancement motives are internally generated and positively reinforcing. They reflect the crossing of the positive reinforcement valence, and internal source dimensions (i.e., drinking to enhance pleasurable emotional states). Social motives are externally generated and positively reinforcing. Individuals who are motivated to drink for social reasons are externally controlled, seeking to obtain positive social drinking outcomes (i.e., affiliation with others). Coping motives are internally generated and negatively reinforcing (i.e., drinking to cope with negative emotions), and the remaining motive,

¹ Adapted from: Mushquash, C. J., Stewart, S. H., Comeau, M. N., & McGrath, P. J. (2008). The structure of drinking motives in First Nations adolescents in Nova Scotia. *American Indian and Alaska Native Mental Health Research: The Journal of the National Center*, 15, 33-52. With permission from the editor. As first author, I contributed to data collection and analyses, prepared the manuscript, and revised the manuscript in accordance with suggestions from the co-authors, peer-reviewers, and journal editor.

Conformity, is externally generated and negatively reinforcing (i.e., drinking to reduce social censure; see Cooper, 1994).

Certain drinking motives are considered “risky” due to their established associations with heavy drinking and/or drinking related problems in adolescents (Comeau, Stewart, & Loba, 2001; Cooper, 1994) and adults (Conrod, Pihl, & Vassileva, 1998; Conrod, Stewart, Pihl, Côté, Fontaine, & Dongier, 2000; Stewart, Karp, Pihl, & Peterson, 1997; Stewart, Loughlin, & Rhyno, 2001; Stewart & Zeitlin, 1995).

Specifically, Social motives are associated with light, infrequent, and non-problematic use; Enhancement is associated with heavy use; Coping is associated with heavy use and drinking alone; and Conformity is associated with alcohol use among younger adolescents and problems but not necessarily overall heavy use. Among these motives for alcohol use, Enhancement and Coping motives are most strongly related to alcohol problems; Coping is directly related, and Enhancement is related indirectly, through heavy alcohol use.

The ability to identify and classify individuals along these four drinking motives has important implications for intervention and treatment. Certain motives have been related to more normative drinking behaviour, while others have been associated with more problematic drinking, at least in the majority culture. For example, Social motives are endorsed more often than any other motive and are associated with light, infrequent, and non-problematic alcohol use among adolescents from the majority culture (Cooper, 1994). Conversely, Coping motives have been related to heavier, problematic drinking in this group (Cooper, 1994). In addition, Social motives are related to drinking in social settings while Coping motives have been related to drinking alone (Cooper, 1994). Again

in contrast to Social motives, Enhancement motives have been shown to positively predict a pattern of heavy alcohol use and drinking in situations conducive to heavy drinking (at bars and parties), and to be related to alcohol problems by virtue of their association with heavier consumption (Cooper, 1994). Determining why an individual drinks is important to ensure that the right issues are being addressed whether in educational or therapeutic settings. The purpose of this study was to explore the factor structure of the Drinking Motives Questionnaire-Revised (DMQ-R; Cooper, 1994) in a group of First Nations adolescents. It was hypothesized that Cooper's (1994) four-factor model would be supported, and these adolescents would show Enhancement, Social, Coping, and Conformity motives for alcohol use.

Method

Participants

The group consisted of 164 adolescents (84 female, 80 male) from two Mi'kmaq First Nations communities in Nova Scotia who attended grades 8 to 12. The mean age of the group was 16.3 years ($SD = 1.3$) and the average grade was 10. Data were collected across two school years and pooled to enable an adequate subject-to-variable ratio for factor analysis (Gorsuch, 1983). Of the total pooled group, 153 students (93% of the total screening group) reported using alcohol in the previous four months and were included in the analysis (non-drinkers were excluded).

Measure

The Drinking Motives Questionnaire-Revised (Appendix A) is a 20-item self-report measure. It is based on an earlier version (DMQ; Cooper, Russell, Skinner, & Windle, 1992) that was designed to measure three distinct drinking motives (Coping,

Enhancement, Social motives) in adult samples. The revised version was specifically designed to measure the four drinking motives described in Cooper's (1994) model in adolescent samples and included the addition of the Conformity motives subscale. Respondents rate their relative frequency of drinking for each of the indicated reasons on a 5-point Likert scale ranging from 1 (*almost never/never*) to 5 (*almost always/always*).

The DMQ-R is designed to measure adolescents' reasons for drinking alcohol. More specifically, it is used to measure the levels of the four drinking motives in Cooper's (1994) categorical model of drinking motives (i.e., Enhancement, Social, Coping, and Conformity). An example of an item meant to assess Enhancement drinking motives is "*Because it's fun*", while "*To celebrate a special occasion with friends*" is an example of an item that taps Social motives for alcohol use. An example of an item that assesses Coping motives for alcohol use is "*To forget about your problems*", while "*To fit in with a group you like*" is an example of an item tapping Conformity motives. Subscale scores are computed by averaging the scores across the five items on each subscale. The DMQ-R shows good internal consistency, factorial validity, and criterion-related validity in predicting majority culture adolescents' and young adults' levels of alcohol use and alcohol-related problems (Comeau, Stewart, & Loba, 2001; Cooper, 1994).

Data Analysis

An exploratory principal components factor analytic (PCA) methodology was employed, because no work had previously been done with the DMQ-R in this population. As well, oblique rotation was used because of the previously observed intercorrelation of the factors on this measure in adolescents (Cooper, 1998), and young adults (Simons, Correia, Carey, & Borsari, 1998; Stewart, Zeitlin, & Samoluk, 1996)

from the majority culture. In the case of the present study, there were mild to moderate correlations between factors (3-factor solution: .26 - .41; 4-factor solution: .16 - .42).

Results

When a four-factor solution was examined, 64.77% of the variance was accounted for. Because of the relatively small subject-to-variable ratio, loadings $> .60$ were considered salient; this criterion is quite strict, but ensures the reliability of the solution. When examining the pattern of salient loadings, the structure matrix was not easily interpretable within the DMQ-R theoretical framework. Social and Enhancement motives loaded on the same factor (I; 41.25% variance explained) and a factor made mostly of Coping items emerged (III; 6.98% variance explained). The remaining two factors were comprised of items from other motives, with one factor (II; 11.04% variance explained) comprised mostly of Conformity items (and some Coping items) and one factor (IV; 5.50% variance explained) representing only one item from the measure (see Table 2.1). The four-factor solution thus showed poor simple structure, which suggests that the four-factor solution may represent factor over-extraction.

When a three-factor solution was examined, slightly less variance was accounted for (59.27%) but the factor solution better reflected the conceptual model of the DMQ-R. As with the four-factor solution, factor I accounted for the most variance and was comprised of Enhancement and Social motive items, with four of the top five loadings comprising Enhancement items. Factor II was comprised of items from the Coping motive. Factor III was made up of items from the Conformity motive (see Table 2.2). Thus, the three-factor solution was theoretically interpretable and showed excellent simple structure.

Discussion

The purpose of this study was to examine the structure of drinking motives among a group of First Nations adolescents in order to explore whether, similarly to majority-culture adolescents, four factors underlie their motives for alcohol use. In this case, the hypothesized four-factor model did not emerge in this analysis. One reason why the solution was different from the expected theoretical model might be due to sample size. The DMQ-R has 20-items and only 153 respondents were included in the analysis; this translates to a subject-to-variable ratio of 7.7:1. However, Gorusch (1983) recommended a minimum of five subjects per variable and we surpassed this minimum. Given the stringent guidelines with respect to the classification of loadings (salient loadings > .60) this ratio is acceptable. Nonetheless, higher subject-to-variable ratios are generally better (Tabachnick & Fidell, 2001) as small sample sizes can yield unstable factors in factor analysis as correlation coefficients estimated from small samples tend to be less reliable (Tabachnick & Fidell, 2001).

It may be that a three-factor solution better represents the drinking motives of Mi'kmaq youth. In particular, it may be that, within this group, there is an association of drinking in social contexts with Enhancement motives leading to a confounding of Social and Enhancement motives. This would indicate that Cooper's (1994) model and the DMQ-R would need to be modified, by re-coding items intended to measure Social motives as Enhancement, so that the applicability of using this measure is valid. This speaks to the issue of cultural appropriateness; anecdotal evidence from school personnel indicated potential problems with some of the Social motive items. For example, community informants indicated that the word "sociable" (DMQ-R item 5) is not

typically used within the Mi'kmaq culture and thus the respondents may not have been able to adequately answer the Social motive item that used this term. However, it is unclear whether the findings were related strictly to problems with inappropriate wording and language, or if the three-factor solution was related to a structural difference in drinking motives in this group.

Limitations to Cooper's (1994) model and the DMQ-R are important to consider in light of these findings and in consideration of the applicability of this model to First Nations adolescent drinkers. For example, this model does not necessarily exhaust the full range of possible motivations for drinking. For example, some might drink because they enjoy the taste of an alcoholic beverage. This potential "motive" is not captured in Cooper's (1994) model, or by the DMQ-R. Second, critique of this model has been somewhat limited and Cooper's (1994) model has largely pervaded the drinking motivation literature for adolescents. Since the original development of the DMQ-R, Grant, Stewart, O'Connor, Blackwell, and Conrod (2007) showed that among undergraduates, Cooper's coping motive could be separated into two separate factors representing coping with depressive symptoms and coping with anxiety. Future research should explore the applicability of this modified measure of drinking motives among Aboriginal adolescents.

Another way to explore the larger universe of motives for alcohol use among Aboriginal adolescents would be to start from the beginning using qualitative methods. While important for future research, it was outside of the scope of this dissertation. Factor structures could differ across populations, cultures, and ages, for example, for a number of reasons (e.g., wording/dialect issues, context and desired outcomes, non-presence of

construct) and in order to fully understand motives for alcohol use a qualitative approach should be used. Self-ascribed motives are based on self-awareness of motives and are limited by an individuals' level of same. Therefore, research on motives for alcohol use is necessarily affected by the self-awareness of participants.

As well, DMQ-R items in each subscale may only characterize a relatively small range of possible motives. For example, enhancing creativity is not captured by the enhancement motives scale of the DMQ-R but may represent an important motive for alcohol use. Given Cooper's (1994) intent in creating the enhancement motives scale was to characterize desired mood states, it remains important to explore additional facets in order to best understand why young people may drink. As well, similarities in wording among items across differing scales should be noted, particularly across enhancement and social motive scales. This may be a reason for the three-factor finding in the present study; however, research with non-Aboriginal adolescents has shown separation between motives (e.g., Cooper, 1994). Moreover, Conformity items loaded substantially (although below the chosen .60 cutoff) on the coping factor, which could represent a limitation of the DMQ-R. However, both Coping and Conformity represent negative reinforcement motives so some overlap would be expected. An area for future research may be in further refining this measure to best capture the intended motivational construct.

As this quantitative approach did not allow for more in-depth exploration of variables of interest to elucidate the nature of these findings, the next step in understanding motives for alcohol use among this group of Mi'kmaq adolescents necessarily involved a qualitative process whereby adolescents were interviewed about their motives for alcohol use. Thus, the goal of Study 2 was to gain further understanding

of motives for alcohol use among Mi'kmaq adolescents with consideration of Cooper's (1994) motivational model for alcohol use. The failure to find separate Social and Enhancement motives in this group has implications for future intervention attempts and will be discussed in Chapter 3.

Table 2.1. Structure matrix for Oblimin-rotated, four-factor solution ($N = 153$ drinkers).

DMQ-R Item	Factor I- Enhancement/ Social Motives	Factor II- Conformity Motives	Factor III- Coping Motives	Factor IV – Social Pressure Motives
Enhancement Motives Subscale				
13. Because it gives you a pleasant feeling	.83*	.35	-.44	.17
18. Because it's fun	.88*	.25	-.32	-.00
7. Because you like the feeling	.75*	.34	-.31	.20
9. Because it's exciting	.78*	.40	-.24	.19
10. To get high	.64*	.51	-.46	.29
Coping Motives Subscale				
17. To forget about your problems	.46	.49	-.74*	.03
1. To forget your worries	.18	.29	-.69*	.01
4. Because it helps you when you feel depressed or nervous	.43	.34	-.85*	.13
6. To cheer up when you are in a bad mood	.39	.35	-.81*	.12
15. Because you feel more self-confident and sure of yourself	.48	.69*	-.52	.03
Conformity Motives Subscale				
20. So you won't feel left out	.41	.81*	-.48	.17
12. To fit in with a group that you like	.41	.78*	-.42	.24
19. To be liked	.28	.88*	-.38	-.03
8. So that others won't kid you about not drinking	.21	.65*	-.11	.53
2. Because your friends pressure you to drink	.10	.16	-.10	.84*
Social Motives Subscale				
5. To be sociable	.50	.50	-.46	.39
3. Because it helps you enjoy a party	.72*	.23	-.30	.48
14. Because it improves parties and celebrations	.78*	.28	-.38	.06
11. Because it makes social gatherings more fun	.84*	.39	-.42	.11
16. To celebrate a special occasion with friends	.77*	.25	-.33	-.03

Extraction Method: Principal Component Analysis.

Rotation Method: Oblimin with Kaiser Normalization.

*loading greater than .60

Table 2.2. Structure matrix for Oblimin-rotated, three-factor solution ($N = 153$ drinkers).

DMQ-R Item	Factor I- Enhancement/ Social Motives	Factor II- Coping Motives	Factor III- Conformity Motives
Enhancement Motives Subscale			
13. Because it gives you a pleasant feeling	.84*	.42	.28
18. Because it's fun	.87*	.33	.14
7. Because you like the feeling	.78*	.30	.32
9. Because it's exciting	.78*	.26	.37
10. To get high	.65*	.47	.47
Coping Motives Subscale			
17. To forget about your problems	.46	.76*	.28
1. To forget your worries	.19	.67*	.10
4. Because it helps you when you feel depressed or nervous	.44	.80*	.17
6. To cheer up when you are in a bad mood	.41	.77*	.18
15. Because you feel more self-confident and sure of yourself	.48	.63*	.50
Conformity Motives Subscale			
20. So you won't feel left out	.41	.60	.68*
12. To fit in with a group that you like	.41	.53	.69*
19. To be liked	.27	.58	.67*
8. So that others won't kid you about not drinking	.23	.17	.79*
2. Because your friends pressure you to drink	.15	-.04	.50
Social Motives Subscale			
5. To be sociable	.51	.45	.51
3. Because it helps you enjoy a party	.74*	.21	.35
14. Because it improves parties and celebrations	.78*	.37	.18
11. Because it makes social gatherings more fun	.84*	.43	.29
16. To celebrate a special occasion with friends	.76*	.34	.12

Eigenvalues = 6.79, 2.44, 1.78, 1.57, 1.50, and 1.19.

Extraction Method: Principal Component Analysis.

Rotation Method: Oblimin with Kaiser Normalization.

*loading greater than .60

CHAPTER 3. A QUALITATIVE EXAMINATION OF DRINKING MOTIVES IN FIRST NATIONS ADOLESCENTS IN NOVA SCOTIA²

Because of the unexpected emergence of the three factor model of drinking motives detailed in Chapter 2, the quantitative work was followed by a qualitative phase where First Nations youth were interviewed and asked to describe their diverse experiences with alcohol, as well as the contexts in which they tended to drink in order to elucidate the reasons for the finding that Social and Enhancement motives were not separating into two distinct factors in this cultural/age group. The complexities of their social and personal relationships with others and alcohol, as well as their capacity for healthy ways of dealing with their struggles, were key sharing points.

Method

Participants

This study purposively chose participants from the screening group who were identified as high-risk and participated in the intervention (described later in Chapter 5), as well as students who were identified as high-risk who did not participate in the intervention. In addition, a group of students who participated in the intervention as artists and planners, but who were not in the high-risk category, participated in a focus group. The reason for this additional group was to avoid potential confounds associated with choosing only high-risk individuals. For example, it may be that there is no Social motive for drinking among high-risk drinkers and selecting only this group would bias the results in that direction. As well, many of the high-risk students had participated in

² Adapted from Mushquash, C. J., Stewart, S. H., Comeau, M. N., & McGrath, P. J. (2008). The structure of drinking motives in First Nations adolescents in Nova Scotia. *American Indian and Alaska Native Mental Health Research: The Journal of the National Center*, 15, 33-52. With permission from the editor. As first author, I contributed to data collection and analyses, prepared the manuscript, and revised the manuscript in accordance with suggestions from the co-authors, peer-reviewers, and journal editor.

the intervention and may have been affected by the material in such a way as to change their previous motivations for drinking (Mushquash et al., 2007; see Chapter 5). Three subgroups of drinkers were recruited to participate in face-to-face interviews: 1) those with high anxiety sensitivity, 2) those high in the “intensity” component of sensation seeking, and 3) those high in hopelessness. “High” was defined as at least one standard deviation (SD) above the normative mean for their sex on one of the selection variables and at or below the mean on the other. This rule for selection ensured distinct sets of personality groups. Eight adolescents meeting the criteria (three anxiety sensitive, three hopelessness, and two sensation seeking) were recruited from the overall study sample (N = 164) to participate in a face-to-face interview. The mean age was 16.30 years ($SD = 1.30$ years) and mean grade was 10 (range = grades 8 -12).

Apparatus

The 7-open ended questions from the "Motivational Information - Reasons for Drinking" section of the "Comprehensive Drinker Profile" (Marlatt & Miller, 1984; Appendix D) formed the guide for the qualitative interviews. It was chosen because it captures the source and valence of reasons for drinking, similar to the structure of Cooper's (1994) model. Although these open-ended questions guided the interview, participants were able to go in whatever direction and pursue any ideas they chose as they told their stories about why they drink alcohol.

Procedure

Students were interviewed in small groups (5-10/group), with similar age, grade, and sex characteristics as those who participated in school-wide screenings and interventions groups (described in Chapter 5). Interviews took place at their respective

schools. A culturally-relevant Sharing Circle format was used to ensure that the participants could feel free to communicate their feelings and opinions in a way that was safe; the interviewer (Christopher Mushquash) was a First Nations young adult from a different group in Canada. All relevant confidentiality procedures were described to the students. Following consent, the interviews were conducted during school time. Responses during the sixty-minute, audiotaped interviews were transcribed verbatim and coded for theoretically relevant themes and novel narratives with ethnograph software (Scolari, 1999). The raw data from each transcript source was first analyzed for motive-specific information. Initial attempts to do *a priori* coding, using code categories obtained from the CDP (Marlatt & Miller, 1984) did not adequately capture or make sense of the rich qualitative data, so inductive coding was used, discerning themes from the data. Commonalties and disjunctures in the themes were analyzed by personality group membership as well as across groups.

The qualitative approach was directive in that the purpose of questioning was to understand motives for alcohol use among the youth interviewed. Thus, discussion primarily focused on exploration and clarification of motives for alcohol use. Taken in context with Study 1 (Chapter 2), this approach can be broadly categorized as a sequential mixed-method research design (Driscoll, Appiah-Yeboah, Salib, & Rupert, 2007). That is, quantitative data were collected using a standardized measurement instrument (i.e., DMQ-R; Cooper, 1994) and further qualitative data were collected to clarify the nature of the quantitative results as to facilitate a clearer understanding of the nature of drinking motives among this group of adolescents (i.e., the phenomenon). Thus, the qualitative analytical model employed was phenomenological. In this case, the

phenomenology that we were attempting to understand was the finding that Cooper's (1994) model was not supported (Chapter 2).

Results and Discussion

Drinking motives were investigated by examining participants' internal (personal) and external (social context) reasons for alcohol use (Cooper, 1994). All those interviewed in each personality group made statements about reasons for use. For example, internal reasons included drinking to obtain a desired outcome that involves mood alterations (i.e., decreasing negative mood states or increasing positive mood states). External reasons included drinking to achieve an external reward or obtain a positive outcome (e.g., social approval) or to avoid a negative outcome (e.g., being labeled as "not cool" or being left out of a group by friends who are drinking). Social context information also helped to clarify motives. For example, social context factors helped clarify whether a sensation seeking individual was drinking because they were bored, restless, and wanted action or because they craved even more excitement in a highly stimulating moment.

With respect to commonalities across personality groups in particular, at-risk teens spoke about themselves in relation to their drinking, and to their lives. Exact proportions were not calculated for two reasons. First, the sample was comprised of a mix of various high personality risk groups and low personality risk teens. Theoretically, one would expect high anxiety sensitivity to generate more conformity motives, hopeless individuals to generate coping motives and sensation seekers to generate enhancement motives. Low personality risk would be expected to generate social motives. Selection of larger groups of each of these types in a future qualitative study would be useful to detect this

theoretical prediction. Second, interviews were conducted in groups. Thus, student's responses could have been influenced by the responses of their peers. Future research to examine how many students spontaneously generate each type of motive should consider using individual interviews to minimize this possible contamination.

“No one has ever asked those kinds of questions before, so it's kind of hard to think about.”

The above quote was obtained from one student in response to a question about why they drink alcohol. This quote was perhaps the most powerful comment made during the course of the interview process. It came from a young woman in one of the groups and served to demonstrate two points: that there is a need for this type of exploration with First Nations youth, and that the students took this opportunity to share very seriously and gave an appropriate effort. The students appeared very honest when giving their responses despite the subject matter, and some gave personal anecdotes and related stories about situations they had experienced.

Coping, Conformity, and Enhancement motives were represented by reasons such as: stress, escape from reality, numbing, frustration, anger, and depression (Coping); friends use it, and to fit-in (Conformity); and boredom, “to do things you wouldn't normally do”, and to “get high” (Enhancement). However, a Social motive for drinking did not spontaneously emerge when the students were queried about why they drink alcohol in the same way that Enhancement, Conformity, and Coping motives did. Although responses such as “friends use it” and “to party” seem on the surface to be an acknowledgement of Social motives, they clearly emerged instead as Conformity and Enhancement motives, respectively, when these initial responses were further probed.

Participants identified that they were aware of light social drinking in mainstream culture. They recognized that a Social motive for drinking existed outside of their community but had negative connotations toward it and implied that individuals who drank for that reason were ‘snobs’. This was demonstrated by the following quote:

“In France...there are people who drink occasionally, but they are antisocial.”³

When asked what they felt were the most positive effects or consequences associated with drinking alcohol, the groups had difficulty identifying any. Participants described the numbness and ‘buzz’ as positive effects, but none spontaneously mentioned social affiliation as a possible positive consequence of alcohol use, again suggesting the absence of awareness of a Social motive in this cultural/age group. In contrast, there was much agreement with the following statements, made by a number of students:

“There’s nothing positive about drinking.”

“[I] can’t think of a positive reason at all.”

“Nothing, there’s nothing positive. Nothing’s good.”

In contrast to the overall feeling that there is nothing positive about drinking (save some acknowledgement of the enhancement effects), the groups did describe a number of negative effects and consequences associated with drinking alcohol. These included acute effects (blacking out, passing out, and alcohol poisoning), high-risk behavioural effects (fighting, making trouble, driving while intoxicated, abuse [physical/sexual], and suicide), residual effects (hangovers, guilt, relationship break-ups, family dissolution, and financial problems), and long-term health effects (stomach ulcers and “killing yourself

³ The term “antisocial” in this context was meant to indicate “snobbish” rather than the clinical definition of antisocial (DSM-IV-TR; APA, 2000).

slowly”). It was clear that most of the group members had been exposed to many of these negative effects and consequences and many gave personally relevant examples of the negative consequences of alcohol among their friends and families.

The participants most often described motives for drinking that would fall into a Coping category. These students described drinking because they were depressed, frustrated, angry, lonely, sad, and stressed. They used alcohol to cope with interpersonal conflict and to numb their feelings with respect to the emotions listed previously. This motive for drinking is a high-risk motive and is particularly concerning given the young age of the participants. This internally generated negative reinforcement motive (Coping) to reduce or regulate negative emotions occurred quite frequently in the descriptions of these adolescents about the reasons for drinking in their culture and age group.

The next most discussed motive was the internally generated positive reinforcement motives (Enhancement), which involves alcohol use to improve mood or increase emotional well-being. This group used alcohol in response to boredom and to enable them to engage in “fun” behaviours (high-risk) that they would not normally engage in while sober. In addition, alcohol was commonly used to get high and because the students described that they liked the pleasurable feelings they experience while under the influence. This would be consistent with an Enhancement motive rather than a Coping (with boredom) motive for alcohol use. Enhancement motives and the effects associated with these motives for drinking were the only types of effects noted by the group when they were directly queried about what is good about drinking.

The Conformity motive also emerged quite clearly in this group. Participants described that they drank alcohol because their peers did and they wished to fit in:

“That’s the way it is when you are younger. It’s all peer pressure. You say no, you don’t want to get drunk and they [friends] say you should. You see how much fun they have and then you are curious. They [friends] accuse you of being afraid, or not living.”

Some participants described pressuring their friends to use alcohol as well. Further, the focus groups revealed that students who did not engage in alcohol consumption were considered to be an out-group and were sometimes subject to mocking. The drinkers teased the non-drinkers about being “nerds”. This out-group finding is likely consistent with mainstream groups and might be considered quite normative in adolescent motivations for alcohol use (see Cooper, 1994).

Although participants in the qualitative interviews did not spontaneously cite a Social motive for drinking, when directly queried, they did offer that drinking did occur for some social reasons like parties (e.g. birthdays), celebrations, and to be sociable. However, upon further probing, it became quite clear that the Social motive was not related to peer-affiliation or being social per se, but was much more demonstrative of Enhancement motivated drinking. That is, the social drinking described was heavy and high-risk rather than light and non-problematic and the desired outcome for these social drinking occasions was typically heavy intoxication rather than social affiliation. This finding helps clarify and explain the previous factor analytic findings that Social and Enhancement motives load together in this group. Specifically, this group’s conceptualization of socially motivated drinking is captured more accurately by the definition of Enhancement motivated drinking. Another way to elucidate information on item performance would be to interview participants about specific items and determine

what meaning they attributed to the question. Through exploration of how participants responded, more information about the suitability and applicability of the DMQ-R could be gathered.

It is possible that the group format, and interviewer being a First Nations researcher, may have led to socially desirable response patterns and the tendency toward emphasizing the negative effects of drinking. While participants were seemingly open during the interview process, many of the responses seemed to reflect strong anti-drinking rhetoric. Campaigns designed to educate and emphasize abstinence from alcohol and other substances may have led participants to answer in ways that reflected this social message. Future research could take into consideration prior exposure and attitudes toward alcohol and media messages.

There is evidence that both abstainers and heavy drinkers exist in American Indian and Alaska Native cultures, with fewer people who drink in moderation (Heath, 1989). The question of whether there is a Social drinking motive in this cultural group is important. If the cultural view is that the spectrum of drinking behaviour is polarized (i.e., drinkers versus non-drinkers), then this would represent a structural difference in drinking motives. Majority culture views on alcohol use are more continuous, with the continuum of alcohol use including: non-drinkers, non-problem drinkers, problem drinkers, and those with severe alcohol use disorder (Sobell, Wagner, & Sobell, 2003).

In a risk-reduction model of intervention, the goal is a movement to less harmful forms of drinking behaviour. If a Social motive is not present in this group, then abstinence may be the only healthy outcome for Mi'kmaq adolescents and interventions should be adapted accordingly. Alternatively, perhaps this group could be taught to drink

for social affiliation reasons. The goal here would be to create a healthier fourth motive (Social) for drinking. However, if this motive for drinking does not fit within the cultural understanding of alcohol use and there are few models within the community who demonstrate this reason for drinking, then such harm reduction attempts may not be successful.

With this increased understanding of the nature of motives for alcohol use among First Nation adolescents, the next step was to examine these motives within the context of individual personality characteristics. Again, understanding how motives for alcohol use relate to personality traits among First Nation adolescents ensures that our adapted approach to alcohol early intervention is relevant within our partnering communities. What follows is an exploration of the relationships between motives for alcohol use and individual personality factors among Canadian First Nation adolescents.

CHAPTER 4. PERSONALITY AND DRINKING MOTIVES IN FIRST NATIONS ADOLESCENTS⁴

In the majority culture, certain personality factors have been associated with unique reasons or motives for alcohol use (Conrod, Pihl, Stewart, & Dongier, 2000; Theakston, Stewart, Dawson, Knowlden, & Lehman, 2004; Stewart, & Devine, 2000; Stewart, Loughlin, & Rhyno, 2001, Woicik et al., 2009). Four such personality vulnerability factors are Anxiety Sensitivity, Sensation Seeking, Impulsivity, and Hopelessness. Anxiety Sensitivity is an expectation that anxiety-related arousal sensations will lead to physical illness, social embarrassment, and loss of mental control (Reiss, Peterson, Gursky, & McNally, 1986; Conrod, Pihl, Stewart, & Dongier, 2000). Sensation Seeking refers to an individual's propensity to seek out novel and intense experiences (Conrod, Pihl, Stewart, & Dongier, 2000). Impulsivity is a propensity toward valuing immediate reward and the decreased ability to anticipate punishment and delay behavioural responses accordingly (Pihl & Peterson, 1995). Finally, Hopelessness refers to a predisposition toward depressive and pessimistic thoughts (Conrod, Pihl, Stewart, & Dongier, 2000).

As described in Chapter 2, Cooper's (1994) motivational model for alcohol use characterizes motives along two underlying dimensions reflecting the type of reinforcement (positive or negative), and source (internal or external) of outcomes an individual hopes to achieve through alcohol use. By crossing these dimensions, four specific motives for alcohol use emerge: Enhancement, Social, Coping, and Conformity.

⁴ Adapted from: Mushquash, C. J., Comeau, M. N., McLeod, B. D., & Stewart, S. H. (2010). A four-stage method for developing early interventions for alcohol among Aboriginal adolescents, *International Journal of Mental Health and Addiction*, 8, 296-309. With permission from the editor. As first author, I prepared and revised the manuscript in accordance with suggestions from the co-authors, peer-reviewers, and journal editor.

Enhancement reflects drinking to enhance positive mood and wellbeing, Social reflects drinking to obtain positive social rewards, Coping reflects a pattern of drinking to reduce or regulate negative emotions, and Conformity reflects drinking to avoid rejection or social censure (Cooper, 1994).

Anxiety Sensitive individuals have higher levels of alcohol use (Stewart, Peterson, & Pihl, 1995) – at least in young adults – and are particularly sensitive to the anxiety-reducing properties of alcohol (Stewart & Pihl, 1994). Sensation Seeking is associated with elevated rates of alcohol use (Conrod, Pihl, Stewart, & Dongier, 2000). Individuals with high levels of Sensation Seeking drink to experience the euphoric and intoxicating effects of alcohol (Conrod, Peterson, & Pihl, 1997). Impulsivity is linked to elevated risk for early-onset alcohol problems (Pulkkinen & Pitkanen, 1994). Hopelessness is related to an individual's propensity to seek out the analgesic properties of alcohol (Conrod, Pihl, Stewart, & Dongier, 2000). Woicik et al. (2009) demonstrated, among adolescents from the majority culture, that these personality variables are differentially related to motives for alcohol use (Cooper, 1994). Anxiety Sensitivity and Hopelessness were related to Coping and Conformity motives, Sensation Seeking was related to Enhancement motives, and Impulsivity was related to all four motives (Woicik et al, 2009).

It remains to be determined whether such relations between personality and risky motives generalize to Canadian Aboriginal youth. If such relations are also observed in this cultural group, interventions specifically designed to target individuals' personality that have proven effective in alcohol abuse prevention/early intervention in majority culture youth (e.g., Conrod et al., 2006) might be effectively adapted for use in Canadian

Aboriginal communities. As discussed in Chapters 2 and 3 (i.e., studies 1 and 2), within a group of Mi'kmaq youth, the four-factor drinking motive structure of Cooper's (1994) DMQ-R, established in majority culture youth, was not found. Instead, the data were better explained by a three-factor solution that was comprised of a single positive reinforcement motive that most closely reflected the Enhancement motivated drinking construct but was comprised of items from both the Enhancement and Social subscales.

There were several purposes for the present study. An initial purpose was to replicate previous findings of a three-factor structure for drinking motives in First Nation adolescents, using confirmatory factor analytic methods. The main purpose of the present study, however, was to examine the relations between personality and risky motives for alcohol use among First Nation adolescents. A final purpose included examining whether personality predicted not only First Nation youth's drinking motives, but also their episodic heavy drinking behaviour and drinking-related problems.

On the basis of the results presented in Chapter 2, it was hypothesized that Cooper's (1994) four-factor model of drinking motives would show better parsimony with a three-factor model in Canadian First Nation adolescents where Enhancement and Social motives combine into a single positive reinforcement motive. It was also hypothesized that associations between personality factors and motives previously observed in majority culture youth (Woicik et al., 2009) would be similar among First Nation adolescents. Specifically, it was expected that Enhancement motives would be positively correlated with Impulsivity and Sensation Seeking, Conformity and Coping would be positively correlated with Anxiety Sensitivity, and Conformity and Coping would also be positively correlated with Hopelessness (Woicik et al., 2009). Finally, it

was hypothesized that Sensation Seeking would be positively correlated with heavy episodic drinking (previously referred to as binge drinking in the literature) and Anxiety Sensitivity, Hopelessness, Sensation Seeking, and Impulsivity would each be related to increased alcohol use problems.

Method

Participants

A total of 317 adolescents from two rural communities in Nova Scotia ($n = 164$), six rural communities in Saskatchewan ($n = 60$), and one inner-city high school in Manitoba ($N = 93$), participated in the study (Mean Age = 16.0 years, $SD = 1.4$; Mean Grade = 9.6, $SD = 1.2$). The adolescents self-identified as belonging to the following Aboriginal groups (n ; %): Mi'kmaq (164; 51.7%), Ojibway (43; 13.6%), Cree (40; 12.6%), Oji-Cree (16; 5.0%), Métis (16; 5.0%), Dakota (9; 2.8%), and Other (28; 8.8%).

The 'Other' category included youth who self-identified as belonging to a diverse group of First Nation ancestral backgrounds including: Nakota, Saulteaux, Assiniboine, Sioux, and Dene. All students at the participating schools were invited to be involved in the research including a small number of Caucasian youth and a few Black youth. Elders and school partners stressed the importance of including all students in the study in order to demonstrate a cultural value of connectedness and collaboration rather than risk marginalization and stigmatizing of certain groups by exclusion from the study.

Of those 317 students, a total of 191 (60.2%) were categorized as "drinkers" (i.e., reported having consumed alcohol at least once in the past four months). Proportionally, 65.5% of the females in the overall group were 'drinkers', whereas 54.4% of the males in the group were 'drinkers.' In this subset of 'drinkers' there were 110 females (57.6%) and

81 males (42.4%). The mean age of this subset of participants was 16.3 years (Range = 14 – 18; $SD = 1.4$) and the mean grade level was 9.8 (Range = 8 – 12; $SD = 1.2$).

Measures

A demographic questionnaire was administered to participants (Stewart & Devine, 2000), requesting data on age, sex, ethnicity/race, and current grade level in school.

Alcohol Use and Heavy Episodic Drinking Questionnaire

First, participants were asked if they had consumed alcohol in the past four months preceding the testing. One alcoholic beverage was defined as one bottle/can of beer, one glass of wine, or one shot of hard liquor, either straight or with a mixer. Only those reporting having consumed at least one alcoholic beverage in the last four months were selected for inclusion as a ‘drinker’ in the present study. This definition of a drinker allowed for wide variation in drinking behaviour (i.e., infrequent, light drinking to regular, heavy drinking).

Heavy episodic drinking was operationally defined as four or more drinks for females and five or more drinks for males in a single sitting (Wechsler et al., 1994). Heavy episodic drinking was assessed by one item: “How often do you have four (five if you are male) or more drinks on one occasion?” Participants indicated their answer on a five option multiple-choice item with anchors: Never (scored as 1; $n = 30$), Less than monthly (scored as 2; $n = 61$), Monthly (scored as 3; $n = 49$), Weekly (scored as 4; $n = 28$), and Daily or almost daily (scored as 5). Two participants scored 5, representing heavy episodic drinking daily or almost daily. This score was re-coded as 4 (the next highest value of the scale) to reduce skew due to these outliers (Tabachnick & Fidell,

2007). Self-reports of alcohol use behaviour have been shown to have good to excellent test-retest reliabilities and good validity (Dollinger & Malmquist, 2009).

In order to create a continuous heavy episodic drinking variable, the categorical heavy episodic drinking variable was converted by recoding categories into the midpoints for each category, with the upper category recoded as the upper limit plus half the range of the midpoint of the adjacent category (Kuntsche, Knibbe, Gmel, & Engels, 2007). Each option was re-coded into a value representing yearly heavy episodic drinking frequency: 1 was re-coded as 0 occasions per year, 2 as 6 occasions per year, 3 as 12 occasions per year, and 4 as 52 occasions per year. This conversion allowed the values to be more easily interpretable as the converted units of measurement reflected yearly heavy episodic drinking frequency and thus the converted values could be directly compared to previous studies that report in yearly heavy episodic drinking frequency (e.g., Serdula, Brewer, Gillespie, Denny, & Mokdad, 2004; Gmel, Room, Kuendig, & Kuntsche, 2007). For example, prior to recoding, the mean heavy episodic drinking frequency was 2.46 ($SD = .98$). This value falls between the two categories: “less than monthly” and “monthly”. The recoded heavy episodic drinking frequency was 14.79 ($SD = 17.7$), which represents a yearly rate (i.e., drinking 14.79 times per year).

Drinking Motives Questionnaire-Revised (DMQ-R)

The Drinking Motives Questionnaire-Revised (DMQ-R; Cooper, 1994; Appendix A) is described in detail in Chapter 2. It has been shown to possess an interpretable structure among Mi'kmaq youth (Chapter 2).

Rutgers Alcohol Problems Index (RAPI)

The Rutgers Alcohol Problems Index (RAPI; White & Labouvie, 1989; Appendix B) is a 23-item self-report questionnaire that measures adolescent problem drinking symptoms. Although the RAPI is typically used to measure alcohol-related consequences across a one-year time frame, White and Labouvie (1989) suggested that shorter time frames can be used to measure more recent alcohol-related consequences (e.g., four months; Conrod et al., 2006). For the purposes of the present study, this assessment tool was modified slightly from the original to assess negative consequences across a shorter time period (four months). The anchors were changed from: 0 (*never*) and 4 (*more than 10 times*) to 0 (*never*) and 4 (*more than 6 times*). Respondents were asked to indicate how many times during the last four months they had experienced various negative consequences due to their alcohol use on a 5-point Likert scale. Responses were summed across the 23 items as recommended by the authors of the RAPI, and this yielded a composite score that takes problem frequency into account (Winters, 1999). An example of a problem drinking symptom on this questionnaire is “*Had withdrawal symptoms, that is, felt sick because you stopped or cut down on drinking*”. The RAPI has good internal consistency (White & Labouvie, 1989) and has been well validated with adolescents and young adults from both clinical and community samples (Leccese & Waldron, 1994; White & Labouvie, 1989; 2000; Winters, 1999). The RAPI has good convergent validity; for example, a moderate correlation has been shown between RAPI scores and alcohol use intensity (White & Labouvie, 1989). The RAPI has been previously validated for use with Canadian First Nation adolescents (Noel et al., 2010).

Substance Use Risk Profile Scale (SURPS)

The Substance Use Risk Profile Scale (SURPS; Woicik et al., 2009; Appendix C) is a self-report questionnaire that assesses levels of four specific personality risk factors for substance abuse/dependence: Anxiety Sensitivity, Hopelessness, Sensation Seeking, and Impulsivity. The SURPS is designed to have non-overlapping items between the risk factors on the different subscales. This helps discriminate personality dimensions that are normally highly correlated (e.g., the personality factor of Hopelessness is measured independently from the Anxiety Sensitivity personality factor). Participants rate their agreement with each of the items on a 4-point scale ranging from 1 (“strongly disagree”) to 4 (“strongly agree”). The SURPS has been found to have adequate to good internal consistency, and good convergent and discriminant validity (Woicik et al., 2009). In addition, the SURPS has been shown to have good test-retest reliability over a 6-week period (Woicik et al., 2009) as well as good structural, concurrent, and predictive validity (Krank et al., 2011), and good convergent and incremental validity with the NEO-FFI (Woicik et al., 2009).

Procedure

Recruitment occurred through the active process of relationship and partnership building with communities. A pilot project resulted that was entitled, “Nemi’simk, Seeing Oneself”, which included a novel set of student and facilitator manuals (©2004 6148042 Canada Inc., Dr. M. Nancy Comeau, Dr. Sherry H. Stewart, Dr. Patricia J. Conrod, & Javin Creative Inc.). The project sought to prevent alcohol and other substance misuse by at-risk First Nation teens – via brief school-based interventions that were deeply meaningful to the lives of these adolescents (Comeau, Stewart, Mushquash, Wojcik,

Bartlett, Marshall et al., 2005). The project facilitated program delivery via trained community members as facilitators and co-facilitators. First Nations school guidance counselors received training as program facilitators. RCMP members of the Aboriginal and Diversity Policing Services were also trained as co-facilitators to accompany school guidance counselors in a supportive non-clinical role.

Policing partners and other community members (e.g., Elders) approached the investigators upon learning of our previous work in First Nation (i.e., Mi'kmaq) communities in Nova Scotia (i.e., Chapter 5; Mushquash, Comeau, & Stewart, 2007). Essentially, community partners came forward to support the work and self-identified for inclusion in this project. Community partners then identified schools that would be interested in being involved in the project. This research project engaged First Nation youth (grades 8-12) through its grounding in the school system of the First Nation community. Reflecting the deep value of Elders' knowledge of the participating communities, the project was arranged to encourage meaningful participation for onsite liaison with schools, the co-investigators, and the policing partners.

It was essential that respectful relationships be encouraged and maintained with individuals in the community who were seen as carriers of traditional knowledge (i.e., cultural resource people, Elders, traditional advisors). When researchers talked with Elders it was important that the researchers were educated to uphold cultural protocols (e.g., listen without interruption when an Elder spoke). Special attention was paid to the integration of traditional knowledge and its effective use with respect to contemporary issues facing First Nation youth. The ability of the youth to make these connections to every aspect of their life was essential to the increased likelihood of their success as

productive members of their community and society as a whole. A process of integrative First Nation education was advanced which supported a collective worldview that connected to the land and all living things, honouring relatives and relations in keeping with the thought that we all work as equals to one another. Respect for the relevancy of traditional teachings provided seeds of integrity from which the youth could grow and develop.

Prior to administration of the survey, information about the study was distributed to parents/guardians of students in grades 8 to 12 in participating schools. The information sheet was sent in a mail-out directly to parents/guardians as advised by school administration. Parents were encouraged to contact the researchers or the school guidance counselor for further information about the study, or if they did not consent to having their child participate (i.e., negative consent was used as approved by both the Dalhousie University Research Ethics Board and Mi'kmaq Ethics Watch). School administration advised whether school-wide announcements describing the study should be delivered with regular morning announcements, and/or by classroom teachers. Students were informed that the purpose of the survey was to investigate relationships between personality factors and motives for alcohol use. Written informed consent was obtained and maintained separately from the completed questionnaires to ensure anonymity. Of the youth who attended school on survey administration days, only a few declined participation (< 2%). All students in grades 8 to 12 in participating schools were invited to take part in the survey. Data collection was conducted on a grade by grade-level basis during class time over the course of one school day to limit lateral

contamination, with the permission and input of the school principal and school guidance counselor.

Following survey administration, the co-investigators offered a brief overview of how psychology research occurs. No feedback was given to parents, teachers, or students regarding individual student scores. Teachers had the option of remaining in the classroom at the time of the survey. Measures were administered in a standard order as follows: Demographics, Alcohol Use and Heavy episodic drinking Questionnaire, DMQ-R, RAPI, and SURPS. During questionnaire completion, students were permitted to ask questions of the researchers. A small minority of students had difficulties with respect to reading; trusted teachers and classroom aides offered these students assistance in reading the survey questions.

Students were asked to not write their names on the forms in order to protect them from being singled-out or labeled (e.g., as problematic drinkers or otherwise). A toll-free number was offered to students and parents in case they had had any questions about the survey or research project. Students were not compensated financially but survey administrations were concluded with a meal, reflecting the cultural importance of sharing food. All students (those who completed the survey as well as those who declined) were invited to the meal.

Results

Between 158 and 176 of the 191 drinkers responded to the various drinking items on the survey. Means and standard deviations for the DMQ-R for the total sample of drinkers were calculated. While means and standard deviations for Social, Coping, and Conformity motives were comparable to published norms for adolescents from the

majority culture (Cooper, 1994), the mean level of Enhancement motives was significantly higher in this group than the majority culture ($M = 2.71$, $SD = 1.00$; present study versus $M = 2.15$, $SD = 1.01$; Cooper, 1994, respectively, $t(87) = 5.22$, $p < .01$). As well, means and standard deviations for the SURPS for the total group of drinkers were calculated. Again, these results are comparable to published norms for adolescents from the majority culture (SURPS; Woicik et. al., 2009).

Consistent with results presented in Chapter 2, I hypothesized that the DMQ-R three-factor model (where Enhancement and Social motives are combined into a single Enhancement motive) would better represent the data than the original four-factor model proposed by Cooper (1994). To test this hypothesis, a set of confirmatory factor analyses were conducted that compared the fit for the three- and four-factor models using Mplus version 6.1 (Muthen & Muthen, 1998-2010). For the three-factor model, Social and Enhancement motives items were constrained to load on a single Enhancement motives factor, whereas these factors were separate in the specification of the four-factor model.

Model fit was assessed with multiple indices including the χ^2/df ratio, the comparative fit index (CFI), the root-mean-square error of approximation (RMSEA), and the standardized root-mean-square residual (SRMR). There are no absolute criteria for evaluating these fit indices, though a well-fitting model is suggested by a χ^2/df ratio around 2, CFI around .95, and RMSEA and SRMR in the range of .08 (Browne & Cudeck, 1993; Hu & Bentler, 1999). The model fit criteria proposed by Hu and Bentler (1999) are more stringent than those reviewed by Weston and Gore (2006) where $CFI \geq .90$, and $RMSEA$ and $SRMR \leq .10$ are considered acceptable. Following recent suggestions (Longley, Watson, & Noyes, 2005), I considered a model meeting the cutoff

criteria reviewed by Weston and Gore (2006) to have adequate fit and a model meeting criteria proposed by Hu and Bentler (1999) to have excellent fit.

Overall, the hypothesized three-factor model of drinking motives among the present sample of Aboriginal youth adequately fit the data: χ^2/df ratio = 2.23, CFI = .86, RMSEA = .08 (90% CI: .07-.09) and SRMR = .08 (see Table 4.1). All standardized factor loadings (with the exception of DMQ-R item 2) were substantial (i.e., > .30; Brown, 2006) and significant. Similarly, the four-factor model adequately fit the data as well: χ^2/df ratio = 2.22, CFI = .86, RMSEA = .08 (90% CI: .07-.09) and SRMR = .08. All standardized factor loadings (with the exception of DMQ item 2) were substantial (i.e., > .30; Brown, 2006) and significant.

Since both the three-factor and the four-factor models adequately fit the data, I used comparative fit indices to test which model best fit the data in the present group of Aboriginal youth. The absolute value of the Akaike's (1987) information criterion (AIC) and Bayes information criterion (BIC; Raftery, 1993; Schwarz, 1978) carry no meaning, however, they are useful in comparing two competing models. Burnham and Anderson (2002) suggest that smaller AIC and BIC values suggest better fit and superior model parsimony. An AIC or BIC difference of four or more units provides definite evidence of model superiority, a difference of two to four units provides some evidence of model superiority, and a difference of less than two is inconclusive (Burnham & Anderson, 2002).

In the present study, AIC values for the three-factor model (AIC = 10683.85) and the four-factor model (AIC = 10682.26) were inconclusive with respect to model superiority. However, the BIC value for the three-factor model (BIC = 10886.39) was

8.10 units smaller than the BIC value for the four-factor model (BIC = 10894.45).

Results from the CFA analyses suggest that both the three-factor model and the four-factor model adequately fit the data. However, results from the BIC comparative fit index provide preliminary evidence that the three-factor model is superior.

Before conducting subsequent correlation and regression analyses, individualized factor scores for each of the three drinking motives (Enhancement, Conformity, and Coping) were calculated using the factor loadings as regression weights and saved as variables. These values were then used as criterion (dependent) variables in subsequent analyses.

Bivariate Correlations

Bivariate correlations were computed between the orthogonal DMQ-R three factor scores (i.e., Enhancement, Conformity, and Coping) and each of the SURPS subscales (i.e., Impulsivity, Sensation Seeking, Anxiety Sensitivity, and Hopelessness; Table 4.1). As hypothesized, Enhancement motives was positively correlated with Impulsivity ($r = .288, p < .01$) and Sensation Seeking ($r = .295, p < .01$), Conformity was positively correlated with Anxiety Sensitivity ($r = .169, p < .05$), and Coping was positively correlated with Hopelessness ($r = .150, p < .05$).

Bivariate correlations were also computed between sex, heavy episodic drinking, RAPI scores, and each of the SURPS subscales (i.e., impulsivity, sensation seeking, Anxiety Sensitivity, and hopelessness; Table 4.3). Consistent with hypotheses and previous research, Impulsivity ($r = .34, p < .01$), Sensation Seeking ($r = .26, p < .01$), Anxiety Sensitivity ($r = .17, p < .05$), and Hopelessness ($r = .24, p < .01$) were positively correlated with total alcohol-related problems on the RAPI. Only Sensation Seeking ($r =$

.16, $p < .05$) was correlated with heavy episodic drinking. There was a correlation between heavy episodic drinking and RAPI scores ($r = .39, p < .01$), demonstrating an overall greater likelihood of experiencing adverse effects associated with greater engagement in heavy episodic drinking. Sex was correlated with Sensation Seeking ($r = .17, p < .05$); males scored higher than females on this SURPS personality construct.

SURPS Personality Domains as Predictors of DMQ-R Drinking Motives

In order to determine if SURPS personality domains predict drinking motives, separate hierarchical regressions were computed for each orthogonally motive factor score variable (i.e. Enhancement, Conformity, and Coping) with sex entered in Step 1 and the SURPS subscales entered as a block in Step 2. Sex was controlled in all regression analyses given established sex differences in the various personality constructs (Sensation Seeking and Impulsivity higher in males; Hopelessness and Anxiety Sensitivity higher in females; Woicik et. al., 2009) and in heavy drinking behaviour (higher in males; Russell, Light, & Gruenewald, 2004).

Sex did not predict Enhancement motives in Step 1, $F(1, 173) = 1.28, n.s.$, but the block of SURPS scores entered in Step 2 significantly predicted Enhancement motives over-and-above sex, $\Delta F(4, 168) = 6.01, p < .01$. In the final model, $F(5, 173) = 4.42, p < .01$, Enhancement motives were significantly and independently predicted by both Impulsivity and Sensation Seeking (see Table 4.4).

For Conformity motives, sex was a significant predictor, $F(1, 173) = 4.42, p < .05$, in Step 1, and the block of SURPS scores entered in Step 2 significantly predicted this drinking motive over-and-above sex, $\Delta F(4, 168) = 3.25, p < .05$. In the final model,

$F(5, 173) = 3.53, p < .01$, only Anxiety Sensitivity independently predicted Conformity drinking motives (see Table 4.4).

Finally, with respect to Coping drinking motives, sex was not a significant predictor, $F(1, 173) = .08, n.s.$, in Step 1, but the SURPS block entered in Step 2 significantly predicted Coping motives over-and-above sex, $\Delta F(4, 168) = 4.48, p < .01$. In the final model, $F(5, 173) = 3.61, p < .01$, only Hopelessness significantly independently predicted Coping motives but Impulsivity was marginally significant (Table 4.4).

In summary, all final models were significant. Step 1 (sex) did not significantly predict any of the drinking motives in the first step except for Conformity motives where males had significantly higher Conformity motives scores; however, step 2 (block of SURPS factor scores) significantly predicted drinking motives over-and-above sex in each case. Sensation Seeking and Impulsivity independently predicted Enhancement motives, Anxiety Sensitivity predicted Conformity motives, and Hopelessness predicted Coping motives.

SURPS Personality Domains as Predictors of Heavy Episodic Drinking Behaviour and Problems

In order to examine whether SURPS personality domains predict heavy episodic drinking, a hierarchical regression was computed with heavy episodic drinking as the dependent variable, sex entered in Step 1, and SURPS personality domains entered as a block in Step 2. The average yearly heavy episodic drinking frequency in the entire group was 14.79 ($SD = 17.7$) episodes. Transforming this variable allows for ease of conversion to weekly- or monthly- frequency for comparison purposes. Sex did not significantly predict heavy episodic drinking in Step 1, $F(1, 156) = .10, n.s.$ Taken together as a block,

SURPS personality domain scores did not significantly predict heavy episodic drinking over-and-above sex, $\Delta F(4, 152) = 2.24, n.s.$, but the final model was significant, $F(5, 157) = 2.35, p < .05$. Hopelessness and Sensation Seeking significantly and independently predicted heavy episodic drinking in the final model.

Similarly, hierarchical regression analyses were conducted to determine whether SURPS personality domains predict alcohol-related problems as measured by the RAPI. Again, sex was entered in Step 1 and SURPS personality domains were entered as a block in Step 2. The mean RAPI score was 20.32 ($SD = 16.37$), and 37.9% of drinkers in this group scored equal to or above the recommended clinical-cutoff of 21 for alcohol-related problems among First Nation adolescents (Noel et. al., 2010). In the present study, sex did not emerge as a significant predictor of alcohol-related problems as measured by the RAPI, $F(1, 172) = .49, n.s.$ The block of SURPS personality domains significantly predicted RAPI scores over-and-above sex, $\Delta F(4, 167) = 16.78, p < .001$. Specifically, in the final model, $F(5, 172) = 13.55, p < .001$, Hopelessness, Impulsivity, Sensation Seeking, and Anxiety Sensitivity were all significant and independent predictors of alcohol-related problems (Table 4.4).

Discussion

The purpose of this study was to examine relationships between personality risk factors for alcohol misuse (i.e., Anxiety Sensitivity, Sensation Seeking, Impulsivity, and Hopelessness) and risky motives for alcohol use (i.e., Enhancement, Coping, and Conformity) among a group of First Nation adolescents in Canada. As well, a further purpose was to determine the nature of such personality factor relationships with alcohol

related outcomes (i.e., heavy episodic drinking and alcohol related problems as measured by the RAPI).

Bivariate relationships between personality factors and motives for alcohol use were consistent with majority culture findings, and of similar magnitude. Impulsivity and Sensation Seeking was associated with Enhancement motives for alcohol use; Anxiety Sensitivity was associated with Conformity motives; and Hopelessness was associated with Coping motives. These results provide concurrent validity as well as demonstrate the cross-cultural validity for the personality-motivational model of alcohol misuse. What emerges is a robust model that performs consistently across relatively disparate cultural groups.

Impulsivity, Sensation Seeking, Anxiety Sensitivity, and Hopelessness were all associated with greater alcohol related problems as measured by the RAPI. That is, adolescents with high levels of these specific personality traits are overall more likely to experience adverse outcomes from their alcohol use. This may be in part because they tend to drink for less healthy reasons. It is not hard to imagine that a young person who feels hopeless about life, and is motivated to use alcohol in order to cope with such feelings, is at greater risk of developing problems related to their drinking, for example. Clarifying the nature of these relationships empirically advances the validity of developing interventions that make use of personality factors and drinking motives as points of engagement.

Heavy episodic drinking is well established as a particularly risky drinking pattern. In the present study, heavy episodic drinking was associated with greater alcohol related problems. As well, as in past research among majority adolescents (Sher,

Bartholow, & Wood, 2000), Sensation Seeking was associated with heavy episodic drinking. This supports the theoretical assertion that individuals with a higher propensity for the need to experience novel, intense experiences are more likely to engage in heavy alcohol use. Hopelessness, but not Anxiety Sensitivity, was also independently associated with heavy episodic drinking. This is consistent with research that shows that depression but not anxiety is associated with heavy drinking in spite of the fact that both are associated with alcohol problems (see review in Grant, Stewart, & Mohr, 2009).

Perhaps most importantly, not only were SURPS personality factors correlated with DMQ-R drinking motives and drinking outcomes, they were associated beyond the bivariate level. These cross-sectional associations persisted even after the effects of demographic (i.e., sex) and other personality variables were controlled in the analysis. People use and misuse alcohol because of the effects alcohol has on psychobiological systems that mediate responses to motivationally relevant unconditioned and conditioned stimuli (Pihl & Peterson, 1995). Susceptibility to initiating and maintaining alcohol use is determined by individual variation in the operation of these systems (Pihl & Peterson, 1995). The sources of such variation differ in various specific populations of individuals at heightened risk for alcohol abuse (Pihl & Peterson, 1995). It is important to understand correlational relationships between personality factors and alcohol motives, as understanding the nature of such relationships may help to inform important areas for early intervention.

Drinking is a prerequisite of motives for alcohol use. That is, an individual necessarily must drink in order to report problematic motives for alcohol use. While recent promising approaches have included adolescents who are already drinking (see

Chapter 5, for example), it may be possible to assess and intervene *prior* to their development of risky drinking motives using personality factors to identify at risk adolescents. Intervening with these four traits early (before drinking has begun) has recently been shown to delay onset and decrease overall risk for escalation in alcohol-related problems among majority culture adolescents in the United Kingdom (Conrod, Castellanos-Ryan, & Strang, 2010; O’Leary-Barrett, Mackie, Castellanos-Ryan, Al-Khudhairi, & Conrod, 2010).

These findings justify the need for future quantitative research with a large sample of adolescent First Nation drinkers to tie all the pieces together in a model that can be tested via structural equation modeling. In this overarching model, each personality risk factor is tied to risky motives, which in turn relates to drinking problems either directly and/or indirectly through heavy consumption. For example, it appears that Hopelessness is related to Coping motives, to heavy episodic drinking, and to alcohol problems. Thus, the relation of Hopelessness to alcohol problems may be indirect through both Coping motives and heavy drinking. In other words, hopeless adolescents drink to cope with depressive affect (Stewart, Sherry, Comeau, Mushquash, Collins, & Van Hilgenburg, 2011) and drink more heavily than others to achieve these effects. This heavy drinking, as well as their risky coping-related reasons for use, may lead hopeless individuals to experience more negative consequences from their drinking than others might experience.

In the present study, the study group was quite heterogeneous including data from youth from a variety of sites and a variety of Aboriginal groups. We were unable to separate into more specific subgroups given the small sample size. Larger groups will be required to better explore these relations in more homogenous groups. For example,

although sex differences occurred for the conformity motive, the small sample size limited the degree to which sex differences (e.g., sex moderating the relationship of impulsivity to alcohol/substance use problems) could be thoroughly explored. Recently, Battista, Pencer, McGonnell, Durdle, and Stewart (submitted) found that personality variables from the SURPS were related to substance use problems (including alcohol) in a clinical sample. As well, impulsivity was related to externalizing mental health problems while anxiety sensitivity and hopelessness were related to internalizing mental health problems in the same clinical sample. It will be important that future work examines such relations in larger groups, specialized populations, and with different mental health problems as outcomes.

As well, future quantitative work might explore the influence of other variables that might explain more variance. In the present study, the magnitude of the bivariate correlations between motives for alcohol use, personality factors, and drinking outcomes ranged from small to medium (Cohen, 1988), explaining from 2.7% (i.e., Sensation Seeking and heavy episodic drinking) to 15% (i.e., heavy episodic drinking and RAPI scores) of the variance. While these correlations are of similar magnitude to majority culture findings (Woicik et al, 2009), it will be important to continue to refine measures and explore other contributing variables. Again, structural equation modeling is a potentially useful statistical tool that may enable further understanding of the relationships between motives for alcohol use, personality factors, and drinking outcomes in future work, while allowing for more nuanced exploration of the contribution of additional variables.

This study replicated, in an independent group, the DMQ-R three-factor structure in First Nations adolescents (see Study 1, Chapter 2). This finding extends the evidence that when employing the DMQ-R with First Nation adolescents, combining Enhancement and Social motives into a single Positive Reinforcement motive scale that appears to most closely reflect Enhancement motivated drinking, is more valid and ultimately more useful in understanding why these youth drink. Refining the theoretical models within new cultural groups allows for more accurate interpretation and ultimately, greater validity and theoretical applicability.

The following chapter describes the development of and pilot results for an alcohol abuse early intervention program targeting at-risk Mi'kmaq youth conducted in partnership with the communities in which they live and the schools which they attend. This intervention was based on a previously-established, successful psycho-educational and cognitive-behavioural approach for at-risk adolescent drinkers from the majority culture that focuses on different personality pathways to alcohol abuse in youth (Conrod, Stewart, Comeau, & MacLean, 2006). Through partnership and collaboration with two Mi'kmaq communities, the original intervention was adapted to be culturally appropriate for Mi'kmaq youth. The culturally adapted intervention included traditional Mi'kmaq knowledge and teachings in order to make the program as meaningful and relevant as possible in the partner communities (Comeau et al., 2005).

Table 4.1. Standardized factor loadings for the three-factor and four-factor models

DMQ-R Item	Factor	3-factor model	Factor	4-factor model
1. To forget your worries	COP	.46***	COP	.46***
2. Because your friends pressure you to drink	CON	.13	CON	.13
3. Because it helps you enjoy a party	ENH/ SOC	.62***	SOC	.62***
4. Because it helps you when you feel depressed or nervous	COP	.72***	COP	.72***
5. To be sociable	ENH/ SOC	.54***	SOC	.55***
6. To cheer up when you are in a bad mood	COP	.66***	COP	.67***
7. Because you like the feeling	ENH/ SOC	.65***	ENH	.67***
8. So that others won't kid you about not drinking	CON	.48***	CON	.48***
9. Because it's exciting	ENH/ SOC	.73***	ENH	.74***
10. To get high	ENH/ SOC	.62***	ENH	.64***
11. Because it makes social gatherings more fun	ENH/ SOC	.76***	SOC	.78***
12. To fit in with a group you like	CON	.64***	CON	.63***
13. Because it gives you a pleasant feeling	ENH/ SOC	.77***	ENH	.78***
14. Because it improves parties and celebrations	ENH/ SOC	.71***	SOC	.74***
15. Because you feel more self-confident and sure of yourself	COP	.56***	COP	.56***
16. To celebrate a special occasion with friends	ENH/ SOC	.64***	SOC	.66***
17. To forget about your problems	COP	.71***	COP	.72***
18. Because it's fun	ENH/ SOC	.72***	ENH	.71***
19. To be liked	CON	.77***	CON	.77***
20. So you won't feel left out	CON	.73***	CON	.73***
	χ^2/df	2.23		2.22
	CFI	.86		.86
	RMSEA	.08		.08
	RMSEA 90% CI	.07-.09		.07-.09
	SRMR	.08		.08
	AIC	10683.85		10682.26
	BIC	10886.39		10894.45

* $p < 0.05$, ** $p < .01$, *** $p < .001$

Table 4.2 Bivariate correlations between SURPS subscales and orthogonal drinking motive factor scores (N = 174).

SURPS Subscale	Drinking Motive Factor Score Variables			Mean	SD
	ENH/SOC	CON	COP		
Impulsivity	.29**	.17*	.21**	12.13	2.57
Sensation Seeking	.30**	.15	.15	16.58	3.31
Anxiety Sensitivity	.06	.17*	.08	10.55	2.88
Hopelessness	-.09	.02	.15*	14.45	4.27

* significant at the 0.05 level (two-tailed)

** significant at the 0.01 level (two-tailed)

Note. Orthogonal rotation ensures no intercorrelation between drinking motives factors. Factor scores are standardized; ENH/SOC = Positive reinforcement motives; CON = Conformity motive; COP = Coping motive.

Table 4.3. Bivariate correlations between SURPS subscales, sex, heavy episodic drinking, and RAPI scores (pairwise deletion).

	HED	RAPI			
Sex	.11, N = 170	.03, N = 182			
<u>SURPS Subscales</u>			<u>N</u>	<u>M</u>	<u>SD</u>
Impulsivity	.10	.34**	176	12.13	2.57
Sensation Seeking	.16*	.26**	176	16.58	3.31
Anxiety Sensitivity	.04	.17*	176	10.55	2.88
Hopelessness	.08	.24**	176	14.45	4.27
N	158	173			
M	14.79	19.85			
SD	17.74	16.17			

* significant at the 0.05 level (two-tailed)

** significant at the 0.01 level (two-tailed)

Note. HED = heavy episodic drinking; RAPI = Rutger's Alcohol Problem Index.

Table 4.4. Hierarchical Regression Analysis Predicting Positive Reinforcement (Enhancement/Social) drinking motives; Conformity drinking motives; Coping drinking motives; heavy episodic drinking frequency; and RAPI Scores.

Predictors	R^2	Adj. R^2	β	ΔR^2	ΔF	df
ENH/SOC (N = 176)						
Step 1: Sex	.01	.00	.09	.01	1.28	1, 172
Step 2: SURPS	.13	.11		.12	6.01**	4, 168
HOP			-.00			
IMP			.21**			
SS			.22*			
AS			.03			
CON (N = 176)						
Step 1: Sex	.03	.02	.16	.03	4.42**	1, 172
Step 2: SURPS	.10	.07		.07	3.25**	4, 168
HOP			.11			
IMP			.10			
SS			.12			
AS			.19*			
COP (N = 176)						
Step 1: Sex	.00	-.01	.02	.00	.08	1, 172
Step 2: SURPS	.10	.07		.10	4.48**	4, 168
HOP			.22**			
IMP			.16 ^a			
SS			.16			
AS			.09			
HED (N = 158)						
Step 1: Sex	.01	.01	.12	.01	2.16	1, 156
Step 2: SURPS	.07	.04		.06	2.48	4, 152
HOP			.21*			
IMP			.06			
SS			.20*			
AS			.05			
RAPI (N = 173)						
Step 1: Sex	.00	-.00	.05	.00	.49	1, 171
Step 2: SURPS	.290	.27		.29	16.78**	4, 167
HOP			.40**			
IMP			.24*			
SS			.29**			
AS			.18*			

* $p < .05$ ** $p < .01$ *** $p < .001$ ^a $p = .052$

Note. ENH/SOC = Positive reinforcement motive factor scores (Factor 1); CON = Conformity motive factor scores (Factor 2); COP = Coping motive factor scores (Factor 3); Sex coded 1 = female, 2 = male; SURPS = Substance Use Risk Profile Scale; HOP = Hopelessness, IMP = Impulsivity, SS = Sensation Seeking, AS = Anxiety Sensitivity. Missing values replacements were not made for single-item heavy episodic drinking variable. HED = heavy episodic drinking; RAPI = Rutger's Alcohol Problem Index.

CHAPTER 5. AN ALCOHOL ABUSE EARLY INTERVENTION APPROACH WITH MI'KMAQ ADOLESCENTS⁵

The goal of this project was to develop an alcohol intervention for Mi'kmaq adolescents that integrated traditional Mi'kmaq symbols, to convey knowledge gained through experience, with cognitive-behavioural strategies. That is, the intention was to create a truly culturally relevant alcohol intervention for use in schools in Mi'kmaq communities in Nova Scotia. This was achieved by developing a respectful dialogue, and drawing key learnings from the research team – community members (adolescents, Elders, school personnel, RCMP, etc.) partnership. A key foundation was the emphasis on the journey inward toward personal gifts of the Spirit and the power of self-healing. This chapter describes the development of, and pilot outcome data for, the “Nemi'simk, Seeing Oneself” intervention program (see Comeau, Stewart, Mushquash, et al., 2005).

The empirical background for the intervention approach used here classifies adolescents based on their specific personality types in order to target programming to address these issues. Targeting these specific personality types and associated risky drinking motives has been shown to have positive benefits in terms of changing drinking behaviours among adolescents in the majority culture (i.e., Caucasian; Conrod et al., 2006; for more on the cognitive-behavioural techniques used in the intervention see Watt, Stewart, Conrod, & Schmidt, 2008). There are at least three distinct personality types related to at-risk alcohol use patterns: Anxiety Sensitivity (i.e., fear of anxiety symptoms, like sweating, panicky feelings, racing heart), Sensation Seeking (i.e., preference and

⁵ Adapted from: Mushquash, C. J., Comeau, M. N., & Stewart, S. H. (2007). An alcohol abuse early intervention approach with Mi'kmaq Adolescents. *First Peoples Child & Family Review*, 3, 17-26. With permission from the editor. As first author, I contributed to project development, data collection and analyses, prepared the manuscript, and revised the manuscript in accordance with suggestions from the co-authors, peer-reviewers, and journal editor.

searching for novel, intense experiences), and Hopelessness (i.e., proneness to feelings of worthlessness and sadness).

Quantitative research provides an empirical case for targeting personality factors as a means for reducing “risky” drinking motives in adolescents (Cooper, 1994). Thus, some have suggested that by intervening at the level of personality vulnerability, one can change or help manage at-risk teens’ maladaptive drinking motives (e.g., Coping, Conformity, and Enhancement; Cooper, 1994) and ultimately reduce heavy drinking and alcohol related problems (Pihl & Peterson, 1995; cf. Comeau, 2004). Organizationally, this approach selects first for personality factors and then targets associated maladaptive coping including problematic drinking motives associated with each personality type (Conrod et al., 2006). Findings from studies examining adults from the majority culture with substance use disorders (e.g., Conrod, Pihl, et al., 2000a) have highlighted the potential importance of developing intervention strategies that differentially target subtype-specific personality, motivational, and coping skills profiles (Conrod, Stewart, et al., 2000b).

Brief interventions involving cognitive-behavioural coping skills training are most effective in treating substance abuse disorders when they are applied in a “matched” fashion (Conrod et al., 2000b). For example, Sensation Seeking substance abusers benefit most from coping skills that specifically target their underlying Enhancement drinking motives: drinking for reasons of increasing internal positive emotional states. Comeau and colleagues extended this treatment approach for use in school-based early intervention with at-risk groups of Anxiety Sensitive, Hopelessness, and Sensation Seeking teenage drinkers from the

majority culture (Comeau, 2004; Comeau, Stewart, Loba, & Theakston, 2004; Conrod et al., 2006).

In the present study, Sensation Seeking was targeted along with Anxiety Sensitivity and Hopelessness. While associations between positive reinforcement motives and alcohol problems were also seen with Impulsivity (see Chapter 4, Table 4.2), only Sensation Seeking was related to heavy patterns of alcohol use (see Chapter 4, Table 4.2). Moreover, the original intervention from which we derived our culturally-adapted intervention only included Sensation Seeking, Anxiety Sensitivity, and Hopelessness (Conrod et al., 2006). Thus, for the pilot study, we did not develop an Impulsivity intervention. We hypothesized that the culturally-adapted intervention would benefit Mi'kmaq adolescent drinkers in that participants would have the opportunity to develop skills to aid in managing their alcohol use and that this would be reflected by lower drinking frequency, less heavy episodic drinking, and fewer alcohol-related problems, as well as increased abstinence from alcohol.

Method

Participants

The intervention groups consisted of adolescents drawn from the same two partnering Mi'kmaq First Nations communities in Nova Scotia described in Chapter 2. The age range was 14 to 18 years ($M = 16$) and the grade range was from 8 to 12 ($M = 10$). The screening group was comprised of 169 students (87 females, 82 males) and a total of 41 (26 females, 15 males) youth were identified as eligible and willing to participate. Of those, 29 (20 females, 9 males) presented for and received the

interventions. The remaining 12 (6 females, 6 males) willing and eligible students were assigned later as “controls” because they did not participate in the intervention for various reasons (e.g., illness on first day of intervention).

Measures

Various standardized and author-compiled measures were used to gather information related to demographics and personality-risk-type at baseline (pre-intervention), as well as a variety of alcohol outcomes at baseline and four months post-treatment. For selecting adolescents into the interventions based on personality risk, we used the Substance Use Risk Profile Scale (SURPS; Woicik et al., 2009). A demographics questionnaire (Stewart & Devine, 2000) gathered age, sex, and grade level information, as well as asked students to report whether they had consumed alcohol within the last four months. The latter item was used to select students into the interventions (i.e., to select for current drinkers) and was also administered at follow up as one of several outcome measures.

Another outcome measure tapped drinking problems - specifically, the Rutgers Alcohol Problem Index (RAPI; White & Labouvie, 1989). We also included measures of drinking frequency (i.e., “How often do you usually drink?”) and of frequency of heavy episodic drinking (i.e., “How often do you have six (five if you are female) or more drinks on one occasion?”), both of which were answered on five point scales. Historically, there has been quite a degree of variation in the definition of heavy episodic drinking with little precision or empirical cohesion (Courtney & Polich, 2009). In order to align our heavy episodic drinking measure with the current field-standard, Wechsler et al.’s (1994) criteria was selected for the study presented in Chapter 4, which occurred

chronologically after the present study. A slightly higher cut-off was used in the present study; although the definition of heavy episodic drinking used in the present study was not the current standard in the field, it is certainly in line with the range of cut-offs that have been employed in the literature (Courtney & Polich, 2009).

Finally, in order to determine if the results were specific to alcohol, we included a measure of recent marijuana use that asked participants to indicate whether or not they had engaged in any use of marijuana in the past 30 days (scored dichotomously as recent use vs. no recent use). Using primarily published measures allows for the locating of the current findings within the broader literature on adolescent alcohol/substance use, as many previous studies have used the same questionnaires. This strategy also helps to build a knowledge base on First Nations youth, where common points of comparison to non-First Nation and other Aboriginal adolescents are facilitated. Such questionnaires are readily available with access to the published scientific literature.

Student and facilitator manuals were developed to include cognitive-behavioural techniques modified from previously tested manuals for adolescents and adults from the majority culture (Comeau, 2004; Conrod, Stewart et al. 2000; Conrod et al., 2006). However, the content was modified based on input from qualitative semi-structured interviews with groups of Anxiety Sensitive, Hopelessness and Sensation Seeking First Nation teenage drinkers (Comeau & Stewart, 2004; Stewart et al., 2005). The manuals developed were therapeutic in nature and the associated intervention program could be classified as 'targeted' with the goal of reducing alcohol involvement among at-risk youth and stemming the progression of alcohol misuse (Comeau, 2004; Comeau et al., 2004; Kaminer 1999). This approach has been shown to delay the escalation of drinking

and heavy episodic drinking over time when applied with youth from the majority culture (Conrod, Castellanos, & Mackie, 2008).

Illustrative stories in the manuals were informed by the qualitative interviews. This ensured that the situations described were as meaningful as possible to the lives of the youth involved. As well, artwork based on story themes from the qualitative interviews was included in the intervention manuals. Several First Nations youth artists who were living in the participating communities contributed the artwork. Working with Elders and other spiritual teachers from the community, the intervention manuals were adapted to include teachings from the Mi'kmaq culture. For example, artists were asked to try and integrate colours into their artwork to represent the Mi'kmaq concepts Mese'k (wholeness), Sa'se'wika'sik (change), and Tetpaqjoqtesk (balance), to convey their spiritual response to the youths' stories and their themes.

The set of interventions used in this "Seeing Oneself" initiative incorporated the integration of both Aboriginal content and perception within an approach to skills training which aimed to equip different groups of high risk young people with coping skills to negotiate between mainstream and Aboriginal cultures. Aboriginal culture was not simply an "add-on" to program content but was interwoven throughout intervention programming to entail a deeper understanding of cultural values, practices (which describe a way of life), and symbols. The intervention programming combined culturally tailored content and activities with cognitive-behavioural skills development. The four main components of our set of interventions were (a) culturally grounded content, (b) psycho-education, (c) behavioural coping skills training, and (d) cognitive coping skills

training (cf. Comeau, 2004; Conrod et al., 2006), all of which were delivered with culturally-tailored content and methods.

Culturally grounded content and activities throughout the manual helped to describe the Aboriginal world-view and helped youth to integrate Aboriginal perspectives and content into all areas of their life. In an interactive manner, the psycho-education component involved youth being educated about links between the personality factor in question and alcohol and other drug use/misuse and other maladaptive coping strategies (e.g., avoidance for anxiety sensitive youth). Youth were encouraged to discuss the short-term reinforcing properties of alcohol, as an attempt to help them understand their Coping and Conformity or Enhancement motives for use, respectively. This was followed by a discussion of the long-term negative consequences of alcohol and other drug use/misuse.

The coping skills portions of the group activity involved personality-specific behavioural strategies and cognitive restructuring training taken from previous empirically supported interventions with majority culture adolescents (Comeau, 2004; Conrod et al., 2006). The coping skills training sections also included discussion of “scenarios” (i.e., stories from at-risk teens’ real lives) that were informed by qualitative thematic analyses in which context and consequences of risky or maladaptive behaviour (including but not limited to alcohol use) were generated. In addition to cognitive restructuring, the interventions also involved the use of exercises in which youth engaged in activities designed to induce automatic thoughts. Adolescents were simultaneously instructed by the facilitator to utilize cognitive restructuring techniques to counter such thoughts (Comeau, 2004; Conrod et al., 2006).

The early interventions were developed in handbook form involving a manual for the facilitators and a workbook for the participants which is a subset of the material found in the facilitator manual (©2004 6148042 Canada Inc., Dr. M. Nancy Comeau, Dr. Sherry H. Stewart, Dr. Patricia J. Conrod, & Javin Creative Inc.). The investigators worked with Mi'kmaq youth artists to capture the contextual and emotional content of the stories (Comeau et al., 2005). For example, the three groups of teens' diverse experiences and contexts of alcohol use, based on the multiplicity of their social and cultural identities, interests, and experiences, were documented and conveyed in the introductory composite images.

Several of the scenarios tried to capture the complexities of teens' social and personal relationships with alcohol as they defined these relations. Some scenarios focused on maladaptive coping strategies in an attempt to document the interviewed teens' diverse experiences with and contexts of alcohol use. The scenarios were designed to illustrate specific functions of alcohol and to illustrate adolescents' stories of how drinking for specific reasons (e.g., Coping, Conformity, Enhancement) could lead to the situation "spiralling out of control". The manuals and interventions provided space for the students to creatively document and express their active choices, personal strengths, and priorities. The manuals also included Mi'kmaq language, holistic teachings, and images to illustrate concepts such as wholeness and balance.

An important addition to the cognitive-behavioural strategies used within the intervention was the inclusion of Healing Circle teachings. The focus of the intervention was on a greater wholeness; the Healing Circle teachings helped to convey the aspects of personality we were teaching the youth in the psycho-educational portion of the

intervention and were taught by knowledgeable community members. The commonalities between certain aspects of the cognitive-behavioural model (i.e. relationships between thoughts, feelings, and behaviours) and the Healing Circle teachings, prepared the youth for the cognitive-behavioural exercises which were designed to help keep the various aspects of personality in balance (e.g., balance between thoughts and feelings) – an important teaching shared from the Healing Circle.

Procedure

Data were collected during school-wide screenings in two sites (four schools). Eligible students (i.e., Mi'kmaq First Nation teen drinkers who displayed elevations on at least one of the three personality risk factors of the SURPS) were invited to participate in one of three personality-matched brief intervention groups (i.e., one for Anxiety Sensitive drinkers, a second for Sensation Seeking drinkers, and a third for Hopeless drinkers). Personality elevations were defined as scoring at least one standard deviation above the screening sample mean, for their sex, on any of the three SURPS subscales of interest. If students showed elevations on more than one of the three SURPS subscales, they were assigned to the personality group where they showed the greatest deviation from the norm (i.e. if they were elevated on both Sensation Seeking and Hopelessness subscales but their elevation was higher relative to their peers on the Sensation Seeking subscale, they were assigned to the Sensation Seekers group). This was accomplished via comparison z-scores. Elevations on more than one personality risk factor were common. For example, of the original 41 students, 17 met criteria for significant elevations in Hopelessness, 16 met criteria for significant elevations on Anxiety Sensitivity, and 20 met criteria for significant elevations in Sensation Seeking. But based on their most significant z-score

deviations on the SURPS subscales of interest, of the original 41 students, 14 were classified as Anxiety Sensitive, 13 as Sensation Seekers, and 14 as Hopeless drinkers. Of these, 9 Anxiety Sensitive, 9 Sensation Seekers, and 11 Hopeless drinkers, completed the interventions, and 5 Anxiety Sensitive, 4 Sensation Seekers, and 3 Hopeless drinkers did not complete the interventions and served as “controls” as described earlier.

The intervention was brief; it occurred across two 90-minute sessions, in mixed sex groups with trained facilitators (guidance counselors and police officers) leading the programming. A licensed clinical psychologist and a doctoral level researcher, both with substantial experience in school-based substance abuse prevention programming, provided the training on this intervention. Outcome measures were collected at a four-month post-treatment follow-up.

We had originally planned to conduct this pilot as an open trial. An open trial is often the first-step test in the evaluation of an intervention prior to a larger randomized controlled trial (RCT). In an open trial, all participants are assigned to the active intervention and there is no control group. Instead, pre- to post-treatment changes on important outcome measures are examined to determine the change in drinking measures that accompanies this intervention among those who completed the intervention. It is important to note that whether or not the treatment actually causes the observed changes cannot be determined definitively using this methodology. However, for a variety of reasons (e.g., illness, family issues), several willing and eligible students did not attend school on the days the intervention was offered. These students also completed the pre- and post-treatment outcome measures and thus served as a “control” group (albeit not a

randomized control group), against which we could compare the intervention group effects.

We were able to follow up with 25 (intervention and controls combined) of the original 41 (i.e., 61%). Analyses were complete analyses (i.e., only conducted on the data for the adolescents who completed both the pre- and post- measures), rather than intent-to-treat (i.e., where those not present at follow-up are conservatively assigned the same scores at follow-up that they had at baseline) because there was no reason to assume that those who did not show up for the four month follow-up benefited less from the intervention than those who appeared for the follow-up (Watt, Stewart, Birch, & Bernier, 2006).

Results

In order to assess the efficacy of this intervention, several outcome indicators were used: frequency of recent alcohol use, frequency of heavy episodic drinking, severity of alcohol-related problems as measured by the RAPI, alcohol abstinence, and recent marijuana consumption. Figures 5.1 to 5.5 show results for each of the two groups (intervention participants and non-intervention “control” group) on several of the outcome measures at pre-treatment baseline and post-treatment follow-up. Although there were trends for the intervention group to show greater problems on several of the outcome measures at baseline than the control group (see Figures 5.1 to 5.3), none of these baseline group differences proved statistically significant. Dependent sample t-tests were employed for all continuous outcome measures and McNemar chi square tests (dependent sample chi squares) were employed for the dichotomous outcome variables. Analyses were conducted separately within the experimental and control groups since the

two groups are not directly comparable. One-tailed tests of significance were used, as our hypothesized effects were directional.

Figure 5.1 shows the drinking frequency pre- and post- intervention for both the intervention and control groups. A marginally significant decrease in usual drinking frequency was observed for the intervention group, $t(15) = 2.11, p < .05, d = 0.51$, but not for the control group, from pre- to post-intervention.

Figure 5.2 shows frequency of heavy episodic drinking data for both groups at pre- and post- treatment. The intervention group's heavy episodic drinking frequency decreased from pre- to post-treatment, $t(13) = 2.03, p < .05, d = 0.65$, while the control group's heavy episodic drinking frequency did not change over this same interval.

Figure 5.3 presents alcohol-related problems outcomes that were quantified as total scores on the RAPI. The intervention group experienced significantly less alcohol-related problems post-treatment compared to their levels pre-treatment, $t(18) = 2.33, p < .05; d = 0.49$ (Cohen's d values around .50 indicate a medium effect size; Cohen, 1988), while the control group showed no change over the same interval.

Figure 5.4 shows that only the intervention group, but not the control group, showed a significant increase from pre- to post-treatment in the proportion of youth who had abstained from alcohol in the previous four months, $t(18) = 3.24, p < .01$. This variable was analyzed as the proportion of youth in the group who reported any drinking in the last four months at the time of assessment. This value was converted to its inverse (i.e., abstinence in last four months) for depiction in Figure 5.4. Although technically a dichotomous variable that should be analyzed with McNemar tests, the lack of variability

at pre-treatment baseline (i.e., all participants were drinkers at baseline) precluded the use of the McNemar test in this case. Thus, a dependent-sample t-test was used instead.

Finally, although the target of the intervention was alcohol misuse, it was expected that the intervention might also have effects on misuse of other substances; this possibility was tested with respect to marijuana use. Figure 5.5 shows that recent marijuana consumption (in the past 30 days) decreased from 55% to 30% in the intervention group from pre- to post-treatment (McNemar's χ^2 , $p < .05$), while the proportion using marijuana in the control group remained the same at about 50% at both pre- and post-treatment.

Discussion

In the present project, we developed and pilot-tested an early intervention for alcohol misuse among First Nations adolescents from two Mi'kmaq communities in Nova Scotia. This intervention targeted specific at-risk personality types and associated risky drinking motives and is among some promising new developments in prevention and early intervention for alcohol abuse in youth (Stewart et al., 2005). While this type of intervention has been shown to be effective in the majority population (see Conrod et al., 2006), it had not been previously tested with First Nations youth. The present pilot study suggests that this type of intervention is a promising approach for intervening early with First Nations adolescent drinkers that is worthy of further research. It is important to note that sacred traditional teachings were distinct and separate from the two 90-minute personality-targeted intervention sessions. Despite integration of cultural content and concepts, these sessions did not instruct youth in traditional teachings nor were the facilitators trained as cultural advisors. Rather, the sessions supported instruction of

traditional teachings through existing community practices and supported cultural instruction through school curriculum by cultural advisors and Elders.

The intervention was received well in the communities for many reasons. First and foremost, community acceptance of the intervention was in large part due to the communities' identification that alcohol misuse was an issue for their adolescents. Acceptance of the interventions was also enhanced by the collaborative working alliance that was developed between the research team and key members of the community, in all aspects of the project (see Chapter 2; see also Comeau, Stewart, Mushquash, et al., 2005, for additional detail on the community collaboration involved in setting up and implementing this early intervention program). Furthermore, students at the four schools involved were actively engaged in setting up the interventions through such varied types of involvement as participating in the quantitative survey, contributing their own experiences to the qualitative interviews, and/or contributing to the artwork that was used in the manuals.

These pilot results show that the "Nemi'simk, Seeing Oneself" intervention program is a promising method for reducing drinking behaviour and early signs of drinking problems in adolescent drinkers from this cultural group. Compared to eligible students who did not participate in the intervention program who showed no significant change, intervention completers drank less frequently, engaged in less heavy episodic drinking, had lower levels of alcohol-related problems, were more likely to abstain from alcohol use, and reduced their marijuana use at four months following the interventions relative to their levels at pre-treatment baseline. The reductions obtained on the continuous outcome measures were considered medium sized effects by Cohen's *d*.

Due to our small group size, we were unable to determine whether there were differential responses of the various personality groups to the interventions. This could be important because Conrod et al. (2006) showed, for example, that anxiety sensitive students from the majority culture respond to interventions through increased abstinence rates and decreased RAPI scores, whereas sensation seekers from the majority culture respond to the interventions through decreased heavy episodic drinking. It will be important to conduct a larger-scale study to determine if such personality-specific findings extend to Mi'kmaq youth. An additional limitation was the failure to use more conservative intent-to-treat analyses. As this pilot was a first step in the evaluation of new interventions, we were most interested in how the interventions worked for those who completed them.

As well, future research should determine if this intervention is effective for at-risk youth in other First Nations communities across Canada by actively collaborating to apply this methodology to be respectful and assure meaningfulness for the youth that comprise Canada's diverse First Nations population. Future studies should also explore whether the reduced rate of marijuana use means that the benefits of the intervention might extend to adolescents' use of other substances, particularly since the personality risk model extends beyond alcohol abuse to the misuse of a variety of addictive substances (e.g., Conrod et al., 2000a). Finally, future research needs to consider factors including sex, exposure to violence, or maltreatment, which might further differentiate those who can benefit maximally from this intervention (Zahradnik, Stevens, Stewart, Wekerle, & Mushquash, 2007).

Interventions might be modified to include a focus on dealing with exposure to violence to increase their impact and efficacy (for more on exposure to violence and its relevance to substance misuse in First Nation youth, see Zahradnik, Stevens, Stewart, et al., 2007). Teens in the qualitative interview spontaneously discussed dating violence (Comeau, Stewart, & Collins, 2004) and there is a substantial overlap between various forms of interpersonal violence and substance abuse (Stewart, 1996; Wekerle & Wall, 2002, Brewin, Andrews, & Valentine, 2000). As well, some adolescents scored high on more than one personality risk-factor or motive for alcohol use and thus may use alcohol (and other drugs) for a variety reasons. In our intervention, we addressed only the primary personality risk factor and associated risky motive for alcohol use. Future research will need to determine whether multiple targets of intervention are any more effective for those youth who are multiply affected as individuals can have multiple personality risk factor elevations.

While some additional factors (e.g. history of maltreatment) were not explored (see Zahradnik et al., 2007, for additional information on the role of maltreatment in the alcohol misuse of First Nation adolescents), this broader approach was conceptually meaningful to the youth involved in the intervention. This intervention integrated both the cultural and evidence-based science approaches into the programming. While the blended approach of combining traditional Aboriginal knowledge with Western cognitive-behavioural treatment techniques is not necessarily new, what is novel with this particular intervention approach is (a) applying the personality based model to First Nations alcohol misuse and (b) doing this in a culturally-appropriate manner through community-based

collaboration that allowed us to capture the meaning of alcohol use within the lives of the youth.

With respect to differences between the intervention and control groups in this study, we employed the only analytic approach that is justifiable under these circumstances (i.e., where the assignment to groups was not random): separate pre-post tests in each group. We demonstrated that the intervention group showed reductions in alcohol and marijuana use/misuse and the control group did not experience these same reductions over the same interval. The two groups did not differ significantly at baseline on any measures. The control group always appeared to be less (rather than more) severely affected than the intervention group, arguing against the idea that the most severely affected are least likely to participate in the interventions (e.g., those with the most alcohol related problems being most likely to miss school and thus miss receiving the interventions).

Finally, because these personality traits have been shown to be risk factors for alcohol misuse and problems associated with misuse, our program specifically focused on early intervention with alcohol misuse; however, we recognize that the intervention theoretically has promise for other substances of abuse as well (see Conrod et al., 2000a). Moreover, rarely is alcohol misused in isolation from other substances (Barrett, Gross, Garand, & Pihl, 2005; Barrett, Darredeau & Pihl, 2006). Thus, there are some exciting new directions for this intervention approach. Additionally, the strength and promise of this approach are in its model of partnering research expertise with youth service expertise and traditional cultural health expertise with the common goal of improving the health of youth in the community.

Figure 5.1: Mean (and SD) drinking Frequency as a function of group (intervention vs. non-intervention) and time (pre-treatment baseline vs. four-month post-treatment follow-up).

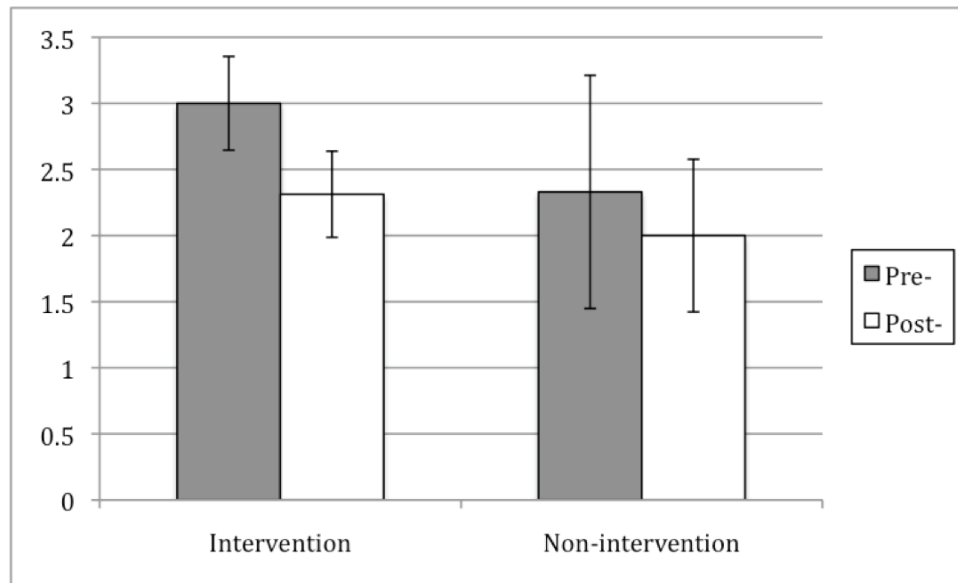


Figure 5.2: Mean (and SD) frequency of heavy episodic drinking as a function of group (intervention vs. non-intervention) and time (pre-treatment baseline vs. four-month post-treatment follow-up).

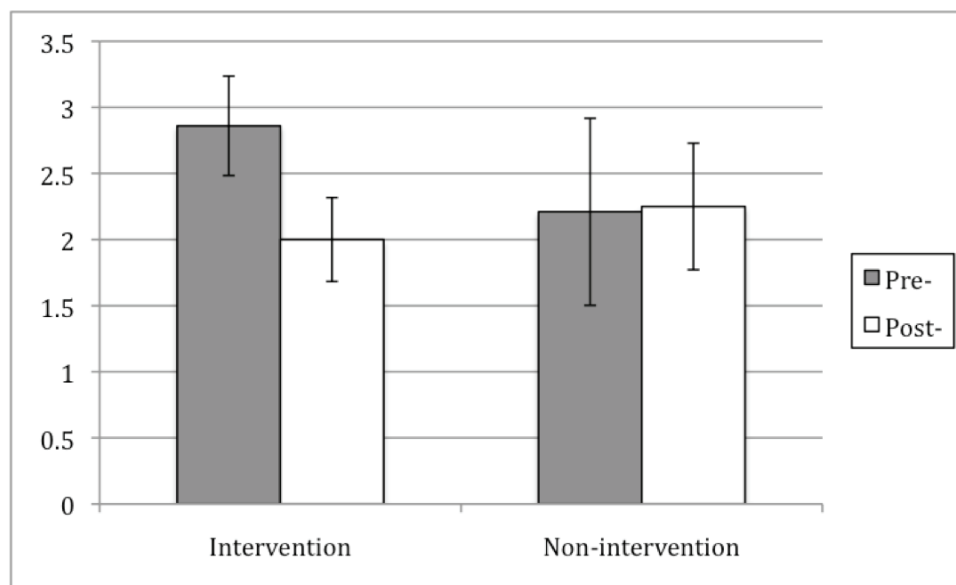


Figure 5.3: Mean (and SD) alcohol-related problems on the RAPI as a function of group (intervention vs. non-intervention) and time (pre-treatment baseline vs. four-month post-treatment follow-up).

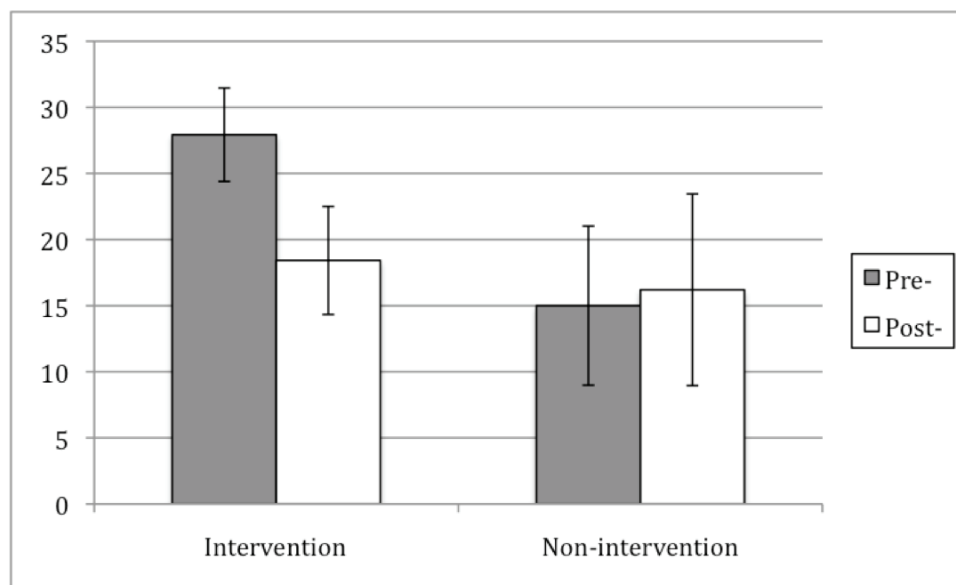


Figure 5.4: Alcohol abstinence (% last 4 months) as a function of group (intervention vs. non-intervention) and time (pre-treatment baseline vs. four-month post-treatment follow-up).

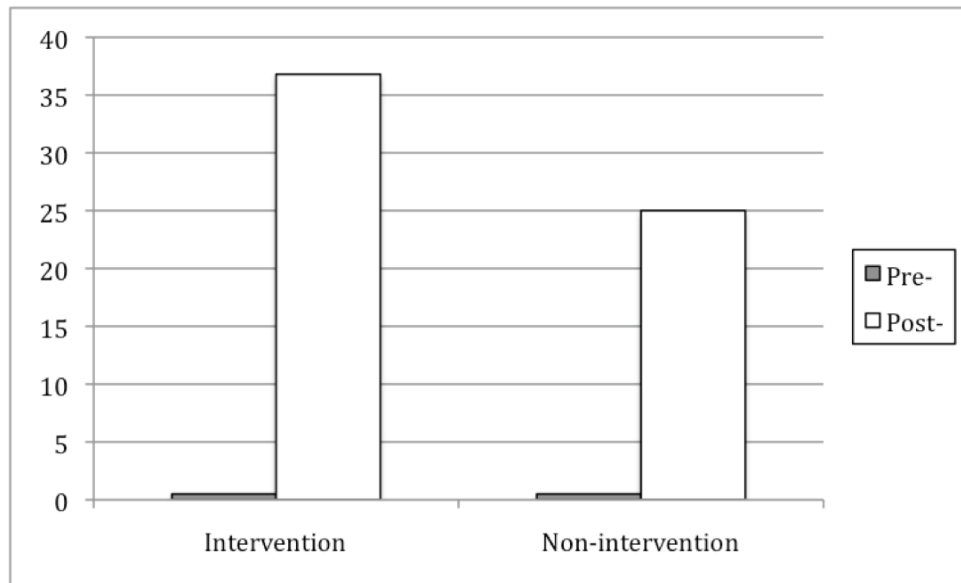
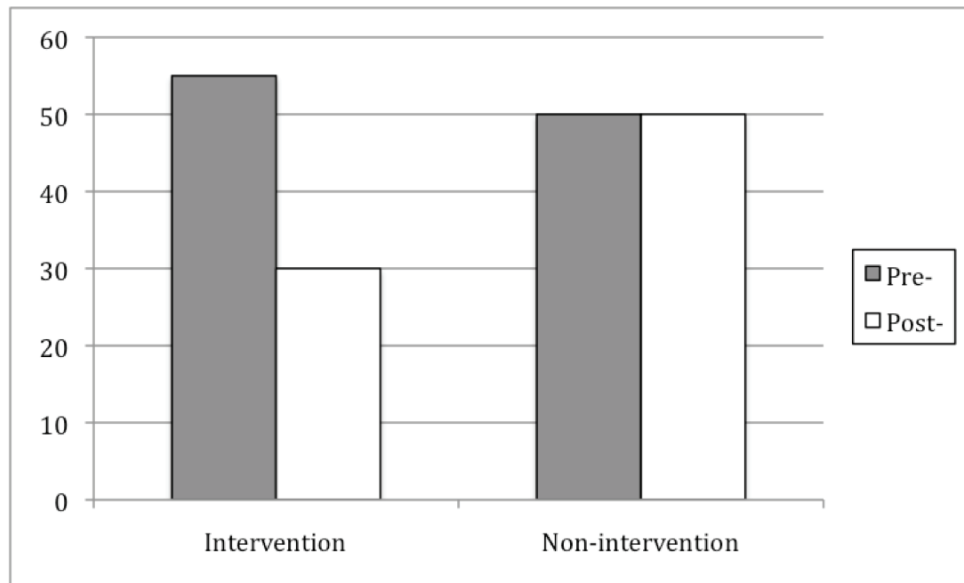


Figure 5.5: Recent Marijuana Use (% using in last 30 days) as a function of group (intervention vs. non-intervention) and time (pre-treatment baseline vs. four-month post-treatment follow-up).



CHAPTER 6. GENERAL DISCUSSION

Aboriginal youth can experience a “spirit of belonging” with their identity and culture (Ball, 2006; Brokenleg, 2002; Aboriginal Healing Foundation, 2004, 2005, 2006). Seeking information and pursuing experiences relevant to one’s ethnicity is part of *exploration* during the development of ethnic identity and typically begins during adolescence (Phinney & Ong, 2007). In a report by the Aboriginal Healing Foundation (2004), it was stated that, “In order for Aboriginal people to devise culturally appropriate healing modalities that will help them to overcome social disorders resulting from the historic trauma they experienced, a people centered and a people directed approach has to be adopted” (Aboriginal Healing Foundation, 2004, p. 77). The “Voices of the Elders” speak to this spirit of belonging:

Aboriginal educators and Elders have envisioned an education for their children that strengthens and inspires by focusing on traditional wisdom. They have envisioned an education where the young people of today are helped in creating a peaceful balance within themselves using Aboriginal “laws” as a guide. The “laws” which govern life, are not laws in the literal and mechanistic sense. They are perspectives that can help young people to orient themselves positively as Aboriginal people while establishing or strengthening their personal identities. They are perspectives that enable Aboriginal people to live with integrity, regardless of the environment or circumstances in which they find themselves.

(Ministries of Education Working Group, 2000, p. 10)

Broadly, people-centered and people-directed approaches relate to a grassroots philosophy wherein individuals and communities are determinative, and around which all

else is structured when it comes to the development, implementation, and evaluation of supporting systems of services. A people-focused wisdom of the community involves treating others as related, a social value that has transformative power for human relationships (Brokenleg, 2002). Following Brokenleg (2002), this dissertation highlights the importance of relationships wherein the community-driven process of relationship building with researchers is primary.

The personality-based approach to the early intervention of alcohol problems in youth appears to be a promising method for reducing drinking behaviour and early signs of drinking problems not only for majority culture youth (e.g., Conrod et al., 2006) but also for First Nations adolescents, at least when the approach is appropriately culturally adapted. In an open-trial pilot study (Chapter 5), the brief interventions were shown to be promising in facilitating abstinence, reducing drinking frequency and heavy episodic drinking frequency, reducing alcohol problems, and reducing marijuana use in First Nations youth relative to no intervention (Mushquash, Comeau, & Stewart, 2007; Chapter 5). These are important findings in light of the recognition that those who initiate drinking in early youth are more likely to increase their drinking, to experience alcohol-related problems during adolescence, and are at greater risk for life-time alcohol abuse or alcoholism (Grant & Dawson, 1997; Hawkins, Graham, Maguin, Abbott, Hill, & Catalano, 1997).

In addition to the importance of accurately assessing First Nation youth with respect to drinking motives, understanding the psychometric behaviour of the DMQ-R (Cooper, 1994) is important when interpreting established theoretical and empirical associates with other measures, as well as drinking behaviour. The SURPS (Woicik, et.

al., 2009) has a well-established empirical base in terms of how specific personality factors relate to motives for alcohol use in adolescent drinkers. That is, certain personality characteristics tend to correlate with specific motives for alcohol use as well as various drinking related outcomes. When interpreting the DMQ-R within a three-factor theoretical framework, the established personality-motive relationships were replicated in First Nations young people. Specifically, Enhancement/Social motives were associated with Impulsivity and Sensation Seeking. As well, Conformity motives were associated with Anxiety Sensitivity and Coping motivated drinking was associated with Hopelessness.

We developed culturally appropriate, personality/motives matched early alcohol interventions for a group of Mi'kmaq adolescents and delivered these interventions to groups of adolescents with specific personality characteristics (and associated risky motives for alcohol use). Future interventions for Aboriginal adolescents might assess personality characteristics prior to the onset of alcohol use and provide personality-specific tools and coping skills so as to attempt to stem the emergence of problematic alcohol use patterns. Within the majority culture, this approach has proved successful in delaying the uptake of drinking behaviour and decreasing risk of alcohol-related problems (O'Leary-Barrett, Mackie, Castellanos-Ryan, Al-Khudhairy, & Conrod, 2010). Community and school partners have emphasized the importance of including youth from grades even earlier than those included here. Respectful collaboration would indicate the incorporation of these community priorities into future work and help to further the successful partnerships already established.

By expanding the partnerships to Aboriginal schools and communities in Manitoba and Saskatchewan in Chapter 4, the community-driven process of relationship building and responding to youth-at-risk needs among partnering Aboriginal communities in these two provinces was strengthened. At the same time, important research questions were answered with the eventual goal of adapting culturally-relevant interventions for adolescent alcohol abuse in these communities. Research (Comeau, 2004; Comeau & Stewart, 2005, Conrod et al., 2006; Mushquash et al., 2006; Stewart et al., 2005) supports the effectiveness of this brief intervention approach in assisting youth to reduce their alcohol use and related problems and marijuana use over a 4-month period. For example, the novel methodology through which the Aboriginal program evolved also informed the development of and testing of intervention techniques (Comeau, 2004; Conrod et al., 2006; Stewart et al., 2005) previously used in a school-based initiative involving adolescents from the majority culture.

Assuming future controlled trials research establishes this set of interventions as effective, this four-stage methodology should optimally open avenues for school-based, substance abuse policy and procedure for innovative student assistance mechanisms while also strengthening partnerships among community stakeholders with youth as their mandate. Detailed discussion with respect to the importance of enhancing the collaborative relationships between researchers and community members, as well as culturally relevant approaches to assessment and measurement have been presented in more detail elsewhere (see Mushquash & Bova, 2007; Mushquash, Comeau, Stewart, 2007; Mushquash, Comeau, Stewart, & McGrath, 2008).

Considering the elevated and problematic co-occurrence between addictive and non-addictive disorders in youth (Conrod & Stewart, 2005; Stewart & Conrod, 2005; Zahradnik, Stevens, Stewart, et al., 2007), this novel methodology and associated cognitive-behavioural therapeutic intervention techniques present clinical advantages over other treatment strategies because this new approach has the possible advantage of improving coping skills related to both the substance abuse and co-morbid disorders (Comeau, 2004; Conrod et al., 2006). Castellanos and Conrod (2006) showed that a United Kingdom-tailored version of the Anxiety Sensitivity intervention reduced panic and school avoidance, the Hopelessness intervention reduced depression, and an Impulsivity intervention reduced acting-out behaviours such as shop lifting, for high-risk adolescents in inner city London.

Research agendas that encompass comprehensive interventions are needed to prevent and intervene early with alcohol misuse among adolescents in racially, ethnically, and economically diverse urban and rural communities (Abrams & Clayton, 2001). Various epidemiological studies have documented high levels of mental health and substance abuse problems in many Canadian First Nations communities (Kirmayer, Brass, & Tait, 2001). Among the social problems indicated by First Nations people as a concern in their community is substance abuse. Moreover, alcohol and other drugs have been identified as leading causes of adolescent morbidity and mortality consequent to motor vehicle accidents, suicidal behaviour, violence, falls, drowning, and unprotected sex (Chandler, Lalonde, & Sokol, 2003; Kaminer, 1999). As such, youth alcohol and other substance abuse in First Nations communities is an important community and public health concern and can be readily understood in part as the direct consequences of

broad social factors, i.e., dislocations and disruption of traditional subsistence patterns and connection to the land (Kirmayer et al., 2001) as well as individual level variables, such as the motives and personality factors studied in this dissertation.

However, rather than assuming generalizability of these findings, it is important to continue to adapt services to the unique contexts present across different communities and groups, both Aboriginal and non-Aboriginal. While there are similarities between some Aboriginal communities with respect to the challenges they face, there are also many differences. Instead, these findings might more importantly generalize to unique Aboriginal cultural groups that, for the most part, hold holistic world-views, healing philosophies, and who experienced, and continue to be exposed to systemic racism and socio-economic disadvantage. By presenting an intervention showing the interrelatedness of cognitive, affective, and somatic symptoms, we attempted to map the cognitive-behavioural model onto a holistic, healing circle model in order to demonstrate potential analogies between these two models.

One of the major issues in developing interventions for Aboriginal people relates to the appropriateness of assessment measures derived from majority cultures and their validity with the particular Aboriginal group in which they are being used. Intervention design is dependent upon appropriate assessment; inappropriate assessment may lead to less-than-optimal interventions. For example, when assessing adolescents' motives for drinking, it is important to appreciate cultural diversity and the effects that this might have on the validity of psychological measures. Drinking motives that might be common within a majority culture simply may not apply within the community of a different group. This may lead to confusion when culturally inappropriate items (designed to tap a

specific but culturally exclusive construct) on a measure are encountered (for more, see Mushquash & Bova, 2007). The social contexts in which First Nation adolescents drink may be dissimilar to Cooper's (1994) social motives in such a way as to not capture "socially motivated drinking" as it exists in some First Nation communities.

Adolescents within a group may drink for different reasons. For the purposes of intervention and treatment, it is important to be able to sort and measure these differences. For example, a treatment approach for an individual who consumes alcohol to cope with negative feelings would be different than that for an individual who consumes alcohol to enhance experiences. Sub-typing drinkers on the basis of their reasons for drinking may facilitate the ability to design appropriate and individually specific programs of prevention and treatment with more accuracy and effectiveness (e.g., Conrod, Pihl, Stewart, & Dongier, 2000). This can only be done when considering both the nature of the questions on a measure, and the overall factor structure of the measurement model within the cultural group where the measure is used. For example, are drinking motives the same across cultures, and are the ways in which they are described similar across cultures (i.e., item cultural sensitivity)? Taking these factors into account at the level of the delivery of the intervention should create a better-matched approach for different teens.

Identifying and classifying individuals based on drinking motives has important implications for intervention. If the goal of programming is to lessen the harm of drinking, then determining why a person drinks becomes an important question. By targeting individuals' reasons for drinking, the appropriate tools can be provided to enable them to change. Clinically, the most important implication would be for an

adjustment to interventions based on risk-reduction models. A risk-reduction approach would suggest that a movement toward less harmful (i.e., Social) motivations for drinking would be the most effective goal within the intervention framework. Because of the association of the Social motive with light, infrequent, and non-problematic drinking behaviour (Cooper, 1994), a movement toward this motive for drinking would reduce harm. However, because Social drinking motives did not emerge within this group, abstinence may be the only healthy outcome supported in some Aboriginal communities. These implications for treatment and prevention require further investigation as determining why an individual drinks is important to ensure that the right issues are addressed whether in educational or therapeutic settings.

Despite unfortunate statistics on high rates of alcohol misuse in Aboriginal communities (Kirmayer, Brass, & Tait, 2001), there are more encouraging data regarding alcohol use/alcohol consequences among Canadian Aboriginal peoples. For example, when compared to the Canadian adult population, Aboriginal adults are less likely than non-Aboriginal adults to use alcohol (Thatcher, 2004; Statistics Canada, 1993). It will continue to be important to collaborate with communities and develop solutions to alcohol and substance use challenges that are respectful and culturally relevant. By establishing strong empirical evidence that is interpretable within an established theoretical framework, a possible area of future development can include personality-motives matched early interventions for Aboriginal youth who may be at-risk of developing future alcohol-related problems due to their risky drinking motives. Through combining promising Western approaches with traditional knowledge and healing practices, such skills together with guidance from our partners will enhance the health

and well-being of Aboriginal youth by empowering them to be proud of their heritage and ways of life, while working to find balance within themselves through learning healthy coping skills to deal with their own unique predispositions to heavy drinking and alcohol-related problems.

REFERENCES

- Aboriginal Healing Foundation. (2004). *Historic Trauma and Aboriginal Healing*. Ottawa: Author.
- Aboriginal Healing Foundation. (2005). *Warrior-Caregivers: Understanding the Challenges and Healing of First Nations Men. A Resource Guide*. Ottawa: Author.
- Aboriginal Healing Foundation. (2006). *Final Report of the Aboriginal Healing Foundation. Volume I. A Healing Journey: Reclaiming Wellness*. Ottawa: Author.
- Abrams, D. B., & Clayton, R. (2001). Transdisciplinary research to improve brief interventions for addictive behaviors. In P. M. Monti, S. M. Colby, & T. A. O'Leary (Eds.), *Adolescents, alcohol and substance abuse: Reaching teens through brief interventions* (pp. 321-341). New York: Guilford Press.
- Alcoholics Anonymous (2001). Chapter 5: How It Works. In *Alcoholics Anonymous* (4th ed., pp. 58-71). Alcoholics Anonymous World Services.
- American Psychiatric Association. (2000). *Diagnostic and statistical manual of mental disorders (Revised 4th ed.)*. Washington, DC: Author.
- Ball, J. (2006). *Early Childhood Care and Development Programs as Hook and Hub: Promising Practices in First Nations Communities*. University of Victoria. School of Child and Youth Care, Early Childhood Development Intercultural Partnerships Programs Report. Victoria, British Columbia, Canada.
- Barrett, S. P., Darredeau, C., & Pihl, R. O. (2006). Patterns of simultaneous polysubstance use in drug using university students. *Human Psychopharmacology: Clinical and Experimental*, 21, 255-263.

- Barrett, S. P., Gross, S. R., Garand, I., & Pihl, R. O. (2005). Patterns of simultaneous polysubstance use in Canadian rave attendees. *Substance Use and Misuse, 40*, 1525-1537.
- Battista, S. R., Pencer, A., McGonnell, M., Durdle, H., & Stewart, S. H. (submitted). Relations of personality to substance use problems and mental health disorder symptoms in adolescents. *International Journal of Mental Health and Addiction*.
- Beck, A. T. (1976). *Cognitive therapy and the emotional disorders*. New York, NY: International Universities Press.
- Brady, M. (2000). Alcohol policy issues for indigenous people in the United States, Canada, Australia, and New Zealand. *Contemporary Drug Problems, 3*, 435-509.
- Brewin, C. R., Andrews, B., & Valentine, J. D. (2000). Meta-analysis of risk factors for posttraumatic stress disorder in trauma-exposed adults. *Journal of Consulting and Clinical Psychology, 68*, 748-66.
- Brokenleg, M. (2002). The circle of courage. In L.K. Brendtro, M. Brokenleg, M., Van Bockern, S. V. (Eds.), *Reclaiming Youth at Risk: Our Hope for the Future* (pp. 43-68). Bloomington, IN: National Educational Service.
- Browne, M. W., & Cudeck, R. (1993). Alternative ways of assessing model fit. In K. A. Bollen & J. S. Long (Eds.), *Testing Structural Equation Models* (pp. 136–162). Beverly Hills, CA: Sage.
- Burnham, K. P., & Anderson, D.R. (2002). *Model selection and multimodel inference: A practical information-theoretic approach 2nd edition*. New York: Springer.

- Castellanos, N., & Conrod, P. (2006). Brief interventions targeting personality risk factors for adolescent substance misuse reduce depression, panic, and risk-taking behaviors. *Journal of Mental Health, 15*, 645-658.
- Chandler, M. J., Lalonde, C. E., Sokol, B., & Hallett, D. (2003). Personal persistence, identity development, and suicide: A study of Native and non-Native North American adolescents. *Monographs of the Society for Research in Child Development, 68*, 1-75.
- Chandler, M. J., Lalonde, C. E., & Sokol, B. W. (2003). Personal persistence, identity development, and suicide: A study of Native and non-Native North American adolescents. *Monographs of the Society for Research in Child Development, 68*, June (vii-130).
- Cohen, J. (1988). *Statistical power analysis for the behavioral sciences (2nd edition)*. Hillsdale, NJ: Erlbaum.
- Comeau, M. N. (2004). Framing Solutions: Adolescent girls and their relationships with alcohol. *Dissertation Abstracts International: Section B: The Sciences and Engineering, 64*, 4601.
- Comeau, M. N., Stewart, S. H., & Loba, P. (2001). The relations of trait anxiety, anxiety sensitivity, and sensation seeking to adolescents' motivations for alcohol, cigarette, and marijuana use. *Addictive Behaviors, 26*, 803-825.
- Comeau, M. N., Stewart, S. H., Conrod, P., & Javin Creative Inc. (2004). *Nemi'simk, Seeing Oneself. Facilitator Manuals*. Halifax, Nova Scotia: 6148042 Canada Inc.

- Comeau, M. N., Stewart, S. H., Conrod, P., & Javin Creative Inc. (2004). *Nemi'simk, Seeing Oneself. Student Self Healing Booklets*. Halifax, Nova Scotia: 6148042 Canada Inc.
- Comeau, M. N., Stewart, S., H., Loba, P., & Theakston, J. (2004). A novel methodology for the development of adolescent alcohol abuse preventative interventions. *Alcoholism: Clinical and Experimental Research, 28 (Suppl. 5)*, 179A.
- Comeau, M. N., Stewart, S. H., Mushquash, C. J., Wojcik, D., Bartlett, C., Marshall, M., Young, J., & Stevens, D. (2005). Community collaboration in developing a culturally-relevant alcohol abuse early intervention program for First Nation youth. *Ontario Association of Children's Aid Societies Journal, 49*, 39-46.
- Comeau, M.N., Stewart, S.H., & Conrod, P.J. (2004a). *Nemi'simk, Seeing Oneself: Learning to deal with anxiety sensitivity*. Halifax, NS, Canada: SPN Inc.
- Comeau, M.N., Stewart, S.H., & Conrod, P.J. (2004b). *Nemi'simk, Seeing Oneself: Learning to deal with sensation seeking*. Halifax, NS, Canada: SPN Inc.
- Comeau, M.N., Stewart, S.H., & Conrod, P.J. (2004c). *Nemi'simk, Seeing Oneself: Learning to deal with negative thinking*. Halifax, NS, Canada: SPN Inc.
- Comeau, M. N., Stewart, S. H., Loba, P., & Theakston, J. (2004). A novel methodology for the development of adolescent alcohol abuse preventative interventions. *Alcoholism: Clinical and Experimental Research, 28*, 179A.
- Comeau, N., Stewart, S. H., & Loba, P. (2001). The relations of trait anxiety, anxiety sensitivity, and sensation seeking to adolescents' motivations for alcohol, cigarette, and marijuana use. *Addictive Behaviors, 26*, 803-825.

- Conrod, P. J., Castellanos-Ryan, N., & Strang, J. (2010). Brief, personality-targeted coping skills interventions and survival as a non-drug user over a 2-year period during adolescence. *Archives of General Psychiatry, 67*, 85–93.
- Conrod, P. J., Peterson, J. B., & Pihl, R. O. (1997). Disinhibited personality and sensitivity to alcohol reinforcements: Independent predictors of drinking behavior. *Alcoholism: Clinical and Experimental Research, 21*, 1320–1332.
- Conrod, P. J., Pihl, R. O., & Vassileva, J. (1998). Differential sensitivity to alcohol reinforcement in groups of men at risk for distinct alcoholism syndromes. *Alcoholism: Clinical & Experimental Research, 22*, 585-597.
- Conrod, P. J., Pihl, R. O., Stewart, S. H., & Dongier, M. (2000). Validation of a system of classifying female substance abusers based on personality and motivational risk factors for substance abuse. *Psychology of Addictive Behaviors, 14*, 243-256.
- Conrod, P. J., Stewart, S. H., Comeau, M. N., & Maclean, M. (2006). Efficacy of cognitive behavioral interventions targeting personality risk factors for youth alcohol misuse. *Journal of Clinical Child and Adolescent Psychology, 35*, 550-563.
- Conrod, P. J., Stewart, S. H., Pihl, R. O., Côté, S., Fontaine, V., & Dongier, M. (2000). Efficacy of brief coping skills interventions that match different personality profiles of female substance abusers. *Psychology of Addictive Behaviors, 14*, 231-242.
- Conrod, P.J., & Stewart, S. H. (2005). A critical look at dual-focused cognitive-behavioral treatments for co-morbid substance use and psychiatric disorders:

- Strengths, limitations, and future directions. *Journal of Cognitive Psychotherapy*, 19, 261-284.
- Conrod, P. J., & Woicik, P. (2002). Validation of a four-factor model of personality risk for substance abuse and examination of a brief instrument for assessing personality risk. *Addiction Biology*, 7, 329-346.
- Conrod, P.J., Castellanos, N., & Mackie, C. (2008). Personality-targeted interventions delay the growth of adolescent drinking and binge drinking. *Journal of Child Psychology and Psychiatry*, 49, 181-190.
- Cooper, M. L. (1994). Motivations for alcohol use among adolescents: Development and validation of a four-factor model. *Psychological Assessment*, 6, 117-128.
- Cooper, M. L., Frone, M. R., Russell, M., & Mudar, P. (1995). Drinking to regulate positive and negative emotions: A motivational model of alcohol use. *Journal of Personality and Social Psychology*, 69, 990-1005.
- Cooper, M. L., Russell, M., Skinner, J. B., & Windle, M. (1992). Development and validation of a three-dimensional measure of drinking motives. *Psychological Assessment*, 4, 123-132.
- Courtney, K. E., & Polich, J. (2009). Binge drinking in young adults: Data, definitions, and determinants. *Psychological Bulletin*, 135, 142-156.
- Cox, M., & Klinger, E. (1988). A motivational model of alcohol use. *Journal of Abnormal Psychology*, 97, 168-180.
- Cox, M., & Klinger, E. (1990). Incentive motivation, affective change, and alcohol use: A model. In M. Cox (Ed.), *Why people drink* (pp. 291-311). New York: Gardner Press.

- Dell, C. A., & Lyons, T. (2008). *Harm reduction for special populations in Canada: Harm reduction policies and programs for persons of Aboriginal descent*. Canadian Centre for Substance Abuse, 6-11-2008. Ref Type: Report.
- Dollinger, S. J., & Malmquist, D. (2009). Reliability and validity of single-item self-reports: With special relevance to college students' alcohol use, religiosity, study and social life. *Journal of General Psychology, 136*, 231-241.
- Driscoll, D. L., Appiah-Yeboah, A., Salib, P., & Rupert, D. J. (2007). Merging qualitative and quantitative data in mixed methods research: How to and why not. *Ecological and Environmental Anthropology, 3*, 19-28.
- Frideres, J. S. (1993). *Native peoples in Canada: Contemporary conflicts (4th ed.)*. Scarborough, ON: Prentice Hall.
- Gmel, G., Room, R., Kuendig, H., & Kuntsche, S. (2007). Detrimental drinking patterns: Empirical validation of the pattern values score of the global burden of disease 2000 study in 13 countries. *Journal of Substance Use, 12*, 337-358.
- Gorusch, R. L. (1983). *Factor Analysis (2nd ed.)*. Hillsdale, NJ: Lawrence Erlbaum Associates.
- Grant, B. F., & Dawson, D. A. (1998). Age at onset of drug use and its association with DSM-IV drug abuse and dependence: Results from the National Longitudinal Alcohol Epidemiologic Survey. *Journal of Substance Abuse, 10*, 163-173.
- Grant, V. V., Stewart, S. H., & Mohr, C. D. (2009). Coping-anxiety and coping-depression motives predict different daily mood-drinking relationships. *Psychology of Addictive Behaviors, 23*, 226-237.

- Grant, V. V., Stewart, S. H., O'Connor, R. M., Blackwell, E., Conrod, P. J. (2007).
Psychometric evaluation of the five-factor Modified Drinking Motives
Questionnaire - Revised in undergraduates. *Addictive Behaviors*, 32, 2611-2632.
- Gray, J.A. (1987). *The psychology of fear and stress (2nd ed.)*. Cambridge, UK:
Cambridge University Press.
- Hartka, E., Johnstone, B., Leino, E.V., Motoyoshi, M., Temple, M.T., & Fillmore, K.M.
(1991). A meta-analysis of depressive symptomatology and alcohol consumption
over time. *British Journal of Addiction*, 86, 1283-1298.
- Hawkins, J. D., Graham, J. W., Maguin, E., Abbott, R., Hill, K. G., & Catalano, R. F.
(1997). Exploring the effects of age on alcohol use initiation and psychosocial
risk factors on subsequent alcohol misuse. *Journal of Studies on Alcohol*, 58, 280-
290.
- Health Canada. (2003). *A statistical profile on the health of First Nations in Canada*.
Ottawa: First Nations and Inuit Health Branch.
- Health Canada. (2009). *A statistical profile on the health of First Nations in Canada:
Determinants of health, 1999-2003*. Ottawa, ON: Canada.
- Heath, D. (1989). American Indians and alcohol: Epidemiological and sociocultural
relevance. In L. Spiegler, D.A. Tate, S. Aitken, & M. Christian (Eds.), *Alcohol
use among U.S. ethnic minorities* (pp. 207-222, NIAAA Research Monograph 18,
DHHS Publ. No. (ADM) 89-1435). Rockville, MD: U.S. Department of Health
and Human Services.

- Helzer, J. E., & Pryzbeck, T. R., (1988). The co-occurrence of alcoholism with other psychiatric disorders in the general population and its impact on treatment. *Journal of Studies on Alcohol, 49*, 219-224.
- Hu, L., & Bentler, P. M. (1999). Cutoff criteria for fit indexes in covariance structure analysis: Conventional criteria versus new alternatives. *Structural Equation Modeling, 6*, 1–55.
- Kaminer, Y. (1999). Addictive disorders in adolescents. *Addictive Disorders, 22*, 275-287.
- Kirmayer, L. J., Brass, G. M., & Tait, C. L. (2000). The mental health of Aboriginal peoples: Transformations of identity and community. *Canadian Journal of Psychiatry, 45*, 607–616.
- Krank, M., Stewart, S. H., O'Connor, R., Woicik, P. B., Wall, A., & Conrod, P. J. (2011). Structural, concurrent, and predictive validity of the Substance Use Risk Profile Scale in early adolescence. *Addictive Behaviors, 36*, 37-46.
- Kuntsche, E., Knibbe, R., Gmel, G., & Engels, R. (2005). Why do young people drink? A review of drinking motives. *Clinical Psychology Review, 25*, 841–861.
- Leccese, M., & Waldron, H. B. (1994). Assessing adolescent substance use: A critique of current measurement instruments. *Journal of Substance Abuse Treatment, 11*, 553–563.
- Longley, S. L., Watson, D., & Noyes, R. (2005). Assessment of the hypochondriasis domain: The Multidimensional Inventory of Hypochondriacal Traits (MIHT). *Psychological Assessment, 17*, 3–14.

- Loppie-Reading C., & Wien, F. (2009). *Health inequalities and social determinants of Aboriginal peoples' health*. Victoria, British Columbia, Canada: National Collaborating Centre for Aboriginal Health.
- MacDonald, A. B., Baker, J. M., Stewart, S. H., & Skinner, M. (2000). The effects of alcohol on response to hyperventilation in high and low anxiety sensitive participants. *Alcoholism: Clinical and Experimental Research*, 24, 1656–1665.
- MacDonald, A.B., Stewart, S.H., Hutson, R., Rhyno, E., & Loughlin, H.L. (2001). The roles of alcohol and alcohol expectancy in the dampening of responses to hyperventilation among high anxiety sensitive young adults. *Addictive Behaviors*, 26, 841-867.
- Marlatt, G. A., & Miller, W. R. (1984). *The comprehensive drinker profile*. Odessa, FL: Psychological Assessment Resources, Inc. <http://casaa.unm.edu/inst/CDP.pdf>
- Marlatt, G. A., & Witkiewitz, K. (2008). *Addictive Behaviors: New Readings on Etiology, Prevention, and Treatment*. Washington, DC: American Psychological Association.
- Miller, E. T., Turner, A. P., & Marlatt, G. A. (2001). The harm reduction approach to the secondary prevention of alcohol problems in adolescents and young adults: Considerations across a developmental spectrum. In P. M. Monti, S. M. Colby & T. A. O'Leary (Eds.), *Adolescents, alcohol, and substance abuse: Reaching teens through brief interventions* (pp. 58-79). New York: The Guilford Press.
- Mushquash, C. J., & Bova, D. (2007). Cross-Cultural assessment and measurement issues. *Journal on Developmental Disabilities*, 13, 53-66.

- Mushquash, C. J., Comeau, M. N., & Stewart, S. H. (2007). An alcohol abuse early intervention for First Nations adolescents. *The First Peoples Child and Family Review, 3*, 17-26.
- Mushquash, C. J., Comeau, M. N., McLeod, B. D., & Stewart, S. H. (2010). A four-stage methodology for developing early interventions for alcohol among Aboriginal adolescents. *International Journal of Mental Health and Addictions, 8*, 296-309.
- Mushquash, C. J., Stewart, S. H., Comeau, M. N., & McGrath, P. J. (2008). The structure of drinking motives in First Nations adolescents in Nova Scotia. *American Indian and Alaska Native Mental Health Research: The Journal of the National Center, 15*, 33-52.
- Mussell, W. J. (2005). *Warrior-Caregivers: Understanding the challenges and healing of First Nations men*. Ottawa, Ontario: The Aboriginal Healing Foundation.
- Muthén, L. K., & Muthén, B. O. (1998-2010) *Mplus user's guide: Version 6.1*. Los Angeles: Muthén and Muthén.
- Noel, M., O'Connor, R. M., Boudreau, B., Mushquash, C. J., Comeau, M. N., Stevens, D., & Stewart, S. H. (2009). The Rutgers alcohol problem index (RAPI): A comparison of cut-points in First Nations Mi'kmaq and non-Aboriginal adolescents in rural Nova Scotia. *International Journal of Mental Health and Addiction, 8*, 336-350.
- O'Leary-Barrett, M., Mackie, C. J., Castellanos-Ryan, N., Al-Khudhairi, N., & Conrod, P. J. (2010). Teacher-delivered personality-targeted interventions delay uptake of drinking and decrease risk of alcohol-related problems. *Journal of the American Academy of Child and Adolescent Psychiatry, 49*, 954 -963.

- Ohannessian, C. M., & Hesselbrock, V. M. (1994). An examination of the underlying influence of childhood temperament and problem behaviors on drinking behaviors in a sample of adult children of alcoholics. *Addictive Behaviors, 19*, 257-268.
- Persons, J. B., Davidson, J., & Tompkins, M. A. (2001). *Essential components of cognitive-behavior therapy for depression*. Washington, DC: American Psychological Association.
- Phinney, J. S., & Ong, A. D. (2007). Conceptualization and measurement of ethnic identity: Current status and future directions. *Journal of Counseling Psychology, 54*, 271–281.
- Pihl, R. O., & Peterson, J. B. (1995). Alcoholism: The role of different motivational systems. *Journal of Psychiatry and Neuroscience, 20*, 372-296.
- Poulin, C., & Wilbur, B. (2002). *Nova Scotia student drug use 2002 highlights report*. Halifax, NS, Canada: Nova Scotia Department of Health.
- Pulkkinen, L., & Pitkanen, T. (1994). A prospective study of the precursors to problem drinking in young adulthood. *Journal of Studies on Alcohol, 55*, 578–587.
- Raftery, A. E. (1993). Bayesian model selection in structural equation models. In K. A. Bollen & J. S. Long (Eds.), *Testing Structural Equation Models* (pp. 163-180). Beverly Hills, CA: Sage.
- Reiss, S., Peterson, R. A., Gursky, D. M., & McNally, R. J. (1986). Anxiety sensitivity, anxiety frequency and the prediction of fearfulness. *Behavior Research and Therapy, 24*, 1–8.

- Russell, M., Light, J. M., & Gruenewald, P. J. (2004). Alcohol consumption and problems: The relevance of drinking patterns. *Alcoholism: Clinical and Experimental Research, 28*, 921-930.
- Schmidt, N.B., Lerew, D.R., & Jackson, R.J. (1997). The role of anxiety sensitivity in the pathogenesis of panic: Prospective evaluation of spontaneous panic attacks during acute stress. *Journal of Abnormal Psychology, 106*, 355-364.
- Serdula, M. K., Brewer, R. D., Gillespie, C., Denny, C. H., & Mokdad, A. (2004). Trends in alcohol use and binge drinking, 1985-1999: Results of a multi-state survey. *American Journal of Preventative Medicine, 26*, 294-298.
- Sher, K. J., Bartholow, B. D., & Wood, M. D. (2000). Personality and substance use disorders: A prospective study. *Journal of Consulting and Clinical Psychology, 68*, 818-829.
- Simons, J., Correia, C. J., Carey, K. B., & Borsari, B. E. (1998). Validating a five-factor marijuana motive measure: Relations with use, problems, and alcohol motives. *Journal of Counseling Psychology, 45*, 265-273.
- Sobell, M.B., Wagner, E.F., & Sobell, L.C. (2003). Substance-related use disorder: Alcohol. In M. Hersen & S.M. Turner (Eds.), *Adult psychopathology and diagnosis* (4th ed., pp. 192-225). New York: Wiley.
- Statistics Canada. (2008). *Aboriginal peoples in Canada in 2006: Inuit, Metis, and First Nations, 2006 Census*. Ottawa: Canada.
- Statistics Canada. (1991). *Aboriginal peoples survey*. Ottawa: Canada.
- Statistics Canada. (2001). *Aboriginal peoples survey*. Ottawa: Canada.
- Statistics Canada. (2006). *Census of Population*. Ottawa: Canada.

- Statistics Canada. (2001). *2001 Census of Canada*. Ottawa: Canada.
- Statistics Canada. (2001). *Aboriginal peoples of Canada: A demographic profile*. Ottawa: Canada.
- Stewart S.H., & Conrod, P.J. (2005). Introduction to the special issue on state-of-the-art in cognitive-behavioral interventions for substance use disorders. *Journal of Cognitive Psychotherapy, 19*, 195-198.
- Stewart, S. H. (1996). Alcohol abuse in individuals exposed to trauma: A critical review. *Psychological Bulletin, 120*, 83-112.
- Stewart, S. H., & Devine, H. (2000). Relations between personality and drinking motives in young adults. *Personality and Individual Differences, 29*, 495–511.
- Stewart, S. H., & Pihl, R. O. (1994). The effects of alcohol administration on psychophysiological and subjective-emotional responses to aversive stimulation in anxiety sensitive women. *Psychology of Addictive Behavior, 8*, 29-42.
- Stewart, S. H., & Zeitlin, S. B. (1995). Anxiety sensitivity and alcohol use motives. *Journal of Anxiety Disorders, 9*, 229-240.
- Stewart, S. H., English, K., & Comeau, M. N. (2005). Relations between personality variables and risky drinking motives in aboriginal adolescents. *Alcoholism: Clinical and Experimental Research, 29*, 82A.
- Stewart, S. H., Karp, J., Pihl, R. O., & Peterson, R. A. (1997). Anxiety sensitivity and self-reported reasons for drug use. *Journal of Substance Abuse, 9*, 223-240.
- Stewart, S. H., Loughlin, H. L., & Rhyno, E. (2001). An examination of the mediating roles of internal drinking motives in explaining personality domain-drinking

- behavior relations in young adults. *Personality and Individual Differences*, 30, 271–286.
- Stewart, S. H., Peterson, J. B., & Pihl, R. O. (1995). Anxiety sensitivity and self-reported alcohol consumption rates in university women. *Journal of Anxiety Disorders*, 9, 283-292.
- Stewart, S. H., Sherry, S. B., Comeau, M. N., Mushquash, C. J., Collins, P., & Van Wilgenburg, H. (2011). Hopelessness and excessive drinking among Aboriginal adolescents: The mediating roles of depression symptoms and drinking to cope. *Depression Research and Treatment*, 2011, 1-11.
- Stewart, S. H., Zeitlin, S. B., & Samoluk, S. B. (1996). Examination of a three-dimensional drinking motives questionnaire in a young adult university student sample. *Behavior Research and Therapy*, 34, 61-71.
- Stewart, S. H., Zvolensky, M. J., & Eifert, G. H. (2001). Negative-reinforcement drinking motives mediate the relation between anxiety sensitivity and increased drinking behavior. *Personality and Individual Differences*, 31, 157–171.
- Stewart, S. H., Zvolensky, M. J., & Eifert, G. H. (2002). The relations of anxiety sensitivity, experiential avoidance, and alexithymic coping to young adults' motivations for drinking. *Behavior Modification*, 26, 274-296.
- Stewart, S.H., Conrod, P.J., Marlatt, G.A., Comeau, M.N., Thrush, C., & Krank, M. (2005). New developments in prevention and early intervention for alcohol abuse in youth. *Alcoholism: Clinical and Experimental Research*, 29, 278-286.
- Schwarz, G. E. (1978). Estimating the dimension of a model. *Annals of Statistics* 6, 461–464.

- Tabachnick, B. G., & Fidell, L. S. (2001). *Using Multivariate Statistics (4th ed.)*. New York: Harper Collins.
- Theakston, J. A., Stewart, S. H., Dawson, M., Knowlden, S. A. B., & Lehman, D. R. (2004). Big five personality domains predict drinking motives. *Personality and Individual Differences, 37*, 971-984.
- van der Woerd, K. A., Cox, D. N., Reading, J., & Kmetz, A. (2010). Abstinence versus harm reduction: Considering follow-up and aftercare in First Nations addictions treatment. *International Journal of Mental Health and Addiction, 8*, 374-389.
- Watt, M., Stewart, S., Birch, C., & Bernier, D. (2006). Brief CBT for high anxiety sensitivity decreases drinking problems, relief alcohol outcome expectancies, and conformity drinking motives: Evidence from a randomized controlled trial. *Journal of Mental Health, 15*, 683-695.
- Watt, M.C., Stewart, S. H., Conrod, P. J., & Schmidt, N. B. (2008). Personality-based approaches to treatment of co-morbid anxiety and substance use disorder. In Stewart, S. H., & Conrod, P. J. (Eds.), *Anxiety and Substance Use Disorders: Theoretical and Treatment Issues*. New York, NY: Springer.
- Wekerle, C., & Wall, A.-M. (2002). Introduction: The overlap between relationship violence and substance abuse. In C. Wekerle & A.-M. Wall (Eds.), *The violence and addiction equation: Theoretical and clinical issues in substance abuse and relationship violence* (pp. 1-21). New York: Brunner\&Routledge.
- Weston, R., & Gore, P. A. (2006). A brief guide to structural equation modeling. *The Counseling Psychologist, 34*, 719–751.

White, H. R., & Labouvie, E. W. (1989). Towards the assessment of adolescent problem drinking. *Journal of Studies on Alcohol, 50*, 30-37.

Zahradnik, M., Stevens, D. S., Stewart, S. H., Comeau, N. M., Wekerle, C., & Mushquash, C. J. (2007). Building a collaborative understanding of pathways to adolescent alcohol misuse in a Mi'kmaq community: A process paper. *The First Peoples Child and Family Review, 3*, 27-36.

APPENDIX A

Drinking Motives Questionnaire – Revised

Below is a list of reasons people sometimes give for drinking alcohol. Thinking of all the times you drank in the past four months, how often would you say that you drink for each of the following reasons?

A = Almost Never / Never
B = Some of the Time
C = Half of the Time
D = Most of the Time
E = Almost Always / Always

- | | | | | | |
|--|---|---|---|---|---|
| 1. To forget your worries. | A | B | C | D | E |
| 2. Because your friends pressure you to drink. | A | B | C | D | E |
| 3. Because it helps you enjoy a party. | A | B | C | D | E |
| 4. Because it helps you when you feel depressed or nervous. | A | B | C | D | E |
| 5. To be sociable. | A | B | C | D | E |
| 6. To cheer up when you are in a bad mood. | A | B | C | D | E |
| 7. Because you like the feeling. | A | B | C | D | E |
| 8. So that others won't kid you about not drinking. | A | B | C | D | E |
| 9. Because it's exciting. | A | B | C | D | E |
| 10. To get high. | A | B | C | D | E |
| 11. Because it makes social gatherings more fun. | A | B | C | D | E |
| 12. To fit in with a group you like. | A | B | C | D | E |
| 13. Because it gives you a pleasant feeling. | A | B | C | D | E |
| 14. Because it improves parties and celebrations. | A | B | C | D | E |
| 15. Because you feel more self-confident and sure of yourself. | A | B | C | D | E |
| 16. To celebrate a special occasion with friends. | A | B | C | D | E |

17. To forget about your problems. A B C D E
18. Because its fun. A B C D E
19. To be liked. A B C D E
20. So you won't feel left out. A B C D E

Scoring:

Enhancement: DMQ-R items 7, 9, 10, 13, 18 (5 items)

Social: DMQ-R items 3, 5, 11, 14, 16 (5 items)

Coping: DMQ-R items 1, 4, 6, 15, 17 (5 items)

Conformity: DMQ-R items 2, 8, 12, 19, 20 (5 items)

APPENDIX B

Rutgers Alcohol Problem Index

Directions: Different things happen to people when they are drinking ALCOHOL, or as a result of their ALCOHOL use. Some of these things are listed below. Please indicate how many times each has happened to you during the last 4 months while you were drinking alcohol or as the result of your alcohol use.

Please select your responses for this questionnaire from the choices below:

Never	1-2 times	3-4 times	5-6 times	More than 6 times
A	B	C	D	E

How many times did the following things happen to you while you were drinking alcohol or because of your alcohol use during the last 4 months?

- | | | | | | |
|--|---|---|---|---|---|
| 1. Not able to do your homework or study for a test. | A | B | C | D | E |
| 2. Got into fights, acted badly, or did mean things. | A | B | C | D | E |
| 3. Missed out in other things because you spent too much money on alcohol. | A | B | C | D | E |
| 4. Went to work or school high or drunk. | A | B | C | D | E |
| 5. Caused shame or embarrassment to someone. | A | B | C | D | E |
| 6. Neglected your responsibilities. | A | B | C | D | E |
| 7. Relatives avoided you. | A | B | C | D | E |
| 8. Felt that you needed more alcohol than you used to use in order to get the same effect. | A | B | C | D | E |
| 9. Tried to control your drinking by trying to drink only at certain times of day or certain places. | A | B | C | D | E |
| 10. Had withdrawal symptoms, that is, felt sick because you stopped or cut down on drinking. | A | B | C | D | E |
| 11. Noticed a change in you personality. | A | B | C | D | E |
| 12. Felt that you had a problem with school. | A | B | C | D | E |

- | | | | | | |
|--|---|---|---|---|---|
| 13. Missed a day (or part of a day) of school or work. | A | B | C | D | E |
| 14. Tried to cut down on drinking. | A | B | C | D | E |
| 15. Suddenly found yourself in a place that you could not remember getting to. | A | B | C | D | E |
| 16. Passed out or fainted suddenly. | A | B | C | D | E |
| 17. Had a fight, argument, or bad feelings with a friend. | A | B | C | D | E |
| 18. Had a fight, argument or bad feelings with a family member. | A | B | C | D | E |
| 19. Kept drinking when you promised yourself not to. | A | B | C | D | E |
| 20. Felt you were going crazy. | A | B | C | D | E |
| 21. Had a bad time. | A | B | C | D | E |
| 22. Felt physically or physiologically dependent on alcohol. | A | B | C | D | E |
| 23. Was told by a friend or neighbour to stop or cut down drinking. | A | B | C | D | E |

APPENDIX C

Substance Use Risk Profile Scale

We would like you to think about the following statements. Please circle completely to show how much you agree or disagree with the statements. Please use the scale shown.

Strongly Agree SA	Agree A	Undecided U	Disagree D	Strongly Disagree SD			
1. I am content.			SA	A	U	D	SD
2. I often don't think things through before I speak.			SA	A	U	D	SD
3. I would like to skydive.			SA	A	U	D	SD
4. I am happy.			SA	A	U	D	SD
5. I often involve myself in situations that I later regret.			SA	A	U	D	SD
6. I enjoy new and exciting experiences even if they are unusual.			SA	A	U	D	SD
7. I have faith that my future holds great promise.			SA	A	U	D	SD
8. It is frightening to feel dizzy or faint.			SA	A	U	D	SD
9. I like doing things that frighten me a little.			SA	A	U	D	SD
10. It frightens me when I feel my heart beat change.			SA	A	U	D	SD
11. I usually act without stopping to think.			SA	A	U	D	SD
12. I would like to learn how to drive a motorcycle.			SA	A	U	D	SD
13. I feel proud of my accomplishments.			SA	A	U	D	SD
14. I get scared when I'm too nervous.			SA	A	U	D	SD
15. Generally, I am an impulsive person.			SA	A	U	D	SD
16. I am interested in experience for its own sake even if it is illegal.			SA	A	U	D	SD

17. I feel that I'm a failure.	SA	A	U	D	SD
18. I get scared when I experience unusual body sensations.	SA	A	U	D	SD
19. I would enjoy hiking long distances in wild and uninhabited territory.	SA	A	U	D	SD
20. I feel pleasant.	SA	A	U	D	SD
21. It scares me when I'm unable to focus on a task.	SA	A	U	D	SD
22. I feel I have to be manipulative to get what I want.	SA	A	U	D	SD
23. I am very enthusiastic about my future.	SA	A	U	D	SD

Scoring:

Hopelessness: 1*, 4*, 7*, 13*, 17, 20*, 23* (7 items)

Impulsivity: 2, 5, 11, 15, 22 (5 items)

Sensation Seeking: 3, 6, 9, 12, 16, 19 (6 items)

Anxiety Sensitivity: 8, 10, 14, 18, 21 (5 items)

* = Reverse-scored

APPENDIX D

The Comprehensive Drinker Profile

C. Motivational Information

Reasons for Drinking

O66. What are the main reasons why you drink? In other words, when you are actually drinking, what for you is the most positive or desirable effect of alcohol? What do you like best about alcohol?

O67. Are you aware of any inner thoughts or emotional feelings, or things within you as a person, which "trigger off" your need or desire to have a drink at a particular moment in time?

O68. Are you aware of any particular situations or set of events, things which happen to you in the outside world, which would result in your feeling like having one or more drinks?

O69. In terms of your life as a whole, what are the most positive effects or consequences of drinking?

O70. When you are actually drinking, what for you is the most negative or undesirable effect of alcohol? In other words, what is the thing you like least about alcohol when you are drinking?

O71. In terms of your life as a whole, what do you see as the most negative effects or consequences of your drinking?

18

O72. Can you describe a situation or set of events which would be least likely to result in your feeling like drinking? In other words, when do you feel least inclined to drink?

19

*This instrument is now in the public domain and may be used, reproduced, and adapted without further permission. The copyright previously held by Psychological Assessment Resources was transferred to the authors, who released it into the public domain.

APPENDIX E

Copyright Permissions

April 28, 2011

American Indian and Alaska Native Mental Health Research: The Journal of the National Center
Natasha Floersch, Publications Manager

Dear Ms. Floersch,

I am preparing my Ph.D. thesis for submission to the Faculty of Graduate Studies at Dalhousie University, Halifax, Nova Scotia, Canada. I am seeking your permission to include a manuscript version of the following paper(s) as a chapter in the thesis:

Mushquash, C. J., Stewart, S. H., Comeau, M. N., & McGrath, P. J. (2008). The structure of drinking motives in First Nations adolescents in Nova Scotia. *American Indian and Alaska Native Mental Health Research: The Journal of the National Center*, 15, 33-52.

Canadian graduate theses are reproduced by the Library and Archives of Canada (formerly National Library of Canada) through a non-exclusive, world-wide license to reproduce, loan, distribute, or sell theses. I am also seeking your permission for the material described above to be reproduced and distributed by the LAC (NLC). Further details about the LAC (NLC) thesis program are available on the LAC (NLC) website (www.nlc-bnc.ca).

Full publication details and a copy of this permission letter will be included in the thesis.

Yours sincerely,

Christopher Mushquash

Permission is granted for:

- a) The inclusion of the material described above in your thesis.
- b) For the material described above to be included in the copy of your thesis that is sent to the Library and Archives of Canada (formerly National Library of Canada) for reproduction and distribution.

Name: Natasha Floersch Title: Professional Research Assistant/
Journal Manager
Signature: _____ Date: 5/2/11

April 28, 2011

International Journal of Mental Health and Addiction
Dr. Masood Zangeneh, Editor-in-Chief

Dear Dr. Zangeneh,

I am preparing my Ph.D. thesis for submission to the Faculty of Graduate Studies at Dalhousie University, Halifax, Nova Scotia, Canada. I am seeking your permission to include a manuscript version of the following paper(s) as a chapter in the thesis:

Mushquash, C. J., Comeau, M. N., McLeod, B. D., & Stewart, S. H. (2010). A four-stage method for developing early interventions for alcohol among Aboriginal adolescents. *International Journal of Mental Health and Addiction*, 8, 296-309.

Canadian graduate theses are reproduced by the Library and Archives of Canada (formerly National Library of Canada) through a non-exclusive, world-wide license to reproduce, loan, distribute, or sell theses. I am also seeking your permission for the material described above to be reproduced and distributed by the LAC (NLC). Further details about the LAC (NLC) thesis program are available on the LAC (NLC) website (www.nlc-bnc.ca).

Full publication details and a copy of this permission letter will be included in the thesis.

Yours sincerely,

Christopher Mushquash

Permission is granted for:

- a) The inclusion of the material described above in your thesis.
- b) For the material described above to be included in the copy of your thesis that is sent to the Library and Archives of Canada (formerly National Library of Canada) for reproduction and distribution.

Name: Masood Zangeneh Title: Editor-in-Chief

Signature: _____ Date: May 10, 2011

April 28, 2011

First Peoples Child & Family Review
Marilyn Bennett, Coordinating Editor/ Director of Research

Dear Ms. Bennett,

I am preparing my Ph.D. thesis for submission to the Faculty of Graduate Studies at Dalhousie University, Halifax, Nova Scotia, Canada. I am seeking your permission to include a manuscript version of the following paper(s) as a chapter in the thesis:

Mushquash, C. J., Comeau, M. N., & Stewart, S. H. (2007). An alcohol abuse early intervention approach with Mi'kmaq Adolescents. *First Peoples Child & Family Review*, 3, 17-26

Canadian graduate theses are reproduced by the Library and Archives of Canada (formerly National Library of Canada) through a non-exclusive, world-wide license to reproduce, loan, distribute, or sell theses. I am also seeking your permission for the material described above to be reproduced and distributed by the LAC (NLC). Further details about the LAC (NLC) thesis program are available on the LAC (NLC) website (www.nlc-bnc.ca).

Full publication details and a copy of this permission letter will be included in the thesis.

Yours sincerely,

Christopher Mushquash

Permission is granted for:

- a) The inclusion of the material described above in your thesis.
- b) For the material described above to be included in the copy of your thesis that is sent to the Library and Archives of Canada (formerly National Library of Canada) for reproduction and distribution.

Name: MARILYN BENNETT Title: COORDINATING EDITOR
Signature: _____ Date: 28th APRIL 2011