THE CONSEQUENCES OF ALCOHOL MEASURE:

PSYCHOMETRIC EVALUATION OF A NEW MEASURE OF POSITIVE AND NEGATIVE CONSEQUENCES OF ALCOHOL USE

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May 2016

Submitted to fulfill the partial requirements for the degree of
Doctor of Philosophy in Clinical Psychology

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Acknowledgments

Although this degree has never been easy or without struggle, I have a deep appreciation for the opportunity to pursue a higher level of education, in a country where women are supported in this endeavor. I am grateful not only for my country and the allocation of government scholarships that supported me to complete this research, but to the many individuals who provided various types of support along the way. I am very grateful to Dr. Chris Mushquash, for his research wisdom, understanding, timeliness, availability, his drive to produce research that makes a contribution to mental health betterment, and his fierce passion for student success. There is much to be learned from his example. Secondly, I have considerable gratitude to Dr. Fred Schmidt who supported my research ideas, despite their potential for difficulty and sometimes lack of feasibility, and even though he is an adjunct faculty member, his contributions to the field and his work with students is not surpassed by many. Fred, thank you for agreeing to supervise me at the outset of graduate school; you are the reason I attended Lakehead in the first place. Thank you Drs. Mazmanian and Gonzalez for your feedback that strengthened this project.

For me, the completion of this dissertation was not possible without the distraction that friends provided - the Reddoor nights will always live on in my memories. I also appreciate the friends that provided research guidance and motivation. I am grateful for my parents that supported my decision to pursue education for this many years, and also gave me the belief that this was possible. Char and Drew, I am so happy that you have been my siblings, but also that I can call you my some of my closest friends. Thank you to my Findlay family for truly inspiring me to be a different person, to see the world through a different lens, and for helping me stay positive through what could have been the most challenging time of my life. Finally, but not lastly, thank you to all my friends and family from afar that have stayed close to me over the years, visited me while I pursued graduate studies, and remain some of my closest friends to this day.

Abstract

Alcohol is a widely used substance among university students. There are several measures that are used to assess the consequences of alcohol consumption. However, current instruments fail to capture several behavioural consequences established in literature. Negative consequences missing from existing measures are related to sexual behaviour, suicidal and non-suicidal self-injury, and criminal and delinquent behaviour. In addition to negative consequences, positive consequences have been neglected from these measures. The goal of this research was to develop a new measure that addresses these gaps. In Study One, items from current and widely used measures in research and clinical applications, as well as newly developed items, were administered to a sample of undergraduate students. Factor analysis and item performance indices (e.g., item to total scale correlations, item variance, relationship to desirable responding) were used to construct a new scale. In Study Two, the new scale was administered to assess indices of reliability and validity. Although many of the new behavioural consequences (e.g., suicidality, eating behaviours, and aggression) were eliminated from the scale through empirical methods of item retention, the final scale was found to perform well across nearly all indices; there was strong evidence of construct, concurrent, and convergent validity. The final scale was comprised of positive and negative consequences, with an index for valence ratings.

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CHAPTER 1. INTRODUCTION

Alcohol Use in University Students

Alcohol is a widely used substance among university students; rates range from 60% - 70% of students reporting the use of alcohol in the past month (Adlaf, Demers, & Gliksman, 2005). University students are not only younger than other adults, but are in a unique developmental period, environment, and culture (Arnett, 2000; Read, Merrill, Kahler, & Strong, 2007; Sher & Gotham, 1999). Arnett (2000) proposed that emerging adulthood spans from ages 18-25, at which time individuals are likely to engage in risky behaviours, such as unsafe driving, unprotected sex, and substance use (Arnett, 1992; 2000; Gonzalez & Skewes, 2013). This developmental stage is unique because it is characterized by a period of independence from parents, lack of constraint from marital or caregiving responsibilities, combined with an independence from social roles (Arnett, 2000). University students generally do not yet have enduring responsibilities that are normative in adulthood (Arnett, 2000). Students experience freedom from usual safeguards, such as guardians and curfews, in an environment where drinking alcohol is common (Read et al., 2007).

Alcohol use has direct and indirect consequences for students (Read et al., 2007). Within a one year period, almost half of university students reported experiencing a hangover, one quarter admitted to driving after drinking and experiencing a black-out, and one-fifth reported falling behind on school work (Perkins, 2002). Drinking by this group is often perceived as normative (Perkins, Meilman, Leichliter, Cashin, & Presley, 1999), yet students are unaware of the potential for long-term negative consequences of excessive substance use (Read et al., 2007). A history of consequences due to alcohol consumption has been predictive of difficulties and increases in later drinking (Mallett, Marzell, & Turrisi, 2011; Read et al., 2007). There may also

be serious consequences as a result of problematic drinking (Read et al., 2007), such as sexually transmitted infections from risky sexual behaviours.

Many students engage in high-risk patterns of drinking despite negative consequences (Perkins, 2002). Heavy episodic (i.e., formerly binge) drinking is often used as a marker for problematic alcohol consumption. The definition of heavy episodic drinking has been criticized, as the criteria are sometimes arbitrary (DeJong, 2003). For example, the consumption of four or more drinks for a female, or five or more drinks for a male may not be necessarily problematic for all drinkers, particularly without consideration of drinking duration. These criteria fail to account for the span of time over which drinks are consumed, and whether protective behavioural strategies are employed. Studies of heavy episodic drinkers, according to the 4+/5+ criteria, have shown that a substantial proportion of these individuals failed to even reach blood alcohol concentration levels that are indicative of intoxication (i.e., .08; Beirness, Foss, & Vogel-Sprott, 2004; Lange & Voas, 2001; Perkins, DeJong, & Linkenbach, 2001). Further, individuals who met criteria for heavy-episodic drinking did not have significantly more alcohol related consequences than those who did not meet criteria (Read, Beattie, Chamberlain, & Merrill, 2008). Thus, current criteria for heavy episodic drinking may give an inaccurate representation of problematic alcohol use. Researchers sometimes use a criterion for heavy episodic drinking that has been established by the National Institute on Alcohol Abuse and Alcoholism, where the consumption of 4/5 or more alcoholic drinks in a two-hour period constitutes a binge; this level of alcohol is close equivalent to a blood alcohol concentration of .08 grams per deciliter of blood (NIAAA, 2004). For most research purposes, it may be more appropriate to use behavioural indices and consequences associated with alcohol use as a proxy for problematic alcohol use.

Alcohol Related Consequences

Problems or negative consequences that result from the consumption of alcohol are varied (Schry & White, 2013). Research has found that subsequent to alcohol consumption there have been increases in accidents and injuries, engagement in risky sexual behavior, visits to the emergency room, aggressive behaviour, impaired driving, and the consumption of illicit substances when it was not planned (Palmer, McMahon, Moreggi, Rounsaville, & Ball, 2012; Miller & Spicer, 2012; Schry & White, 2013). Alcohol related consequences were found to be experienced frequently by undergraduate students, and many indicated repeated and multiple consequences (Mallett et al., 2011). Approximately one-third of students have indicated experiencing six or more distinct, negative consequences from drinking (Mallett et al., 2011). Although many university students may not meet criteria for an alcohol use disorder (Perkins, 2002), alcohol related consequences may be severe and instruments designed to assess for them are pertinent (Devos-Comby & Lange, 2008).

Alcohol related consequences have been categorized as acute or chronic (Li, Hewitt, & Grant, 2007). Some alcohol related consequences are the result of prolonged alcohol consumption, such as health difficulties and lowered cognitive and neurological functioning (Oscar-Berman & Marinković, 2007). Acute consequences include school or work related problems, though there may also be long-term effects as a result of intoxication on one occasion, such as legal consequences, unplanned pregnancies, or sexually transmitted infections (Kahler, Strong, & Read, 2005; Palmer et al., 2012).

School-related consequences. Given the prevalence of alcohol consumption in undergraduate students, they are particularly vulnerable to negative consequences from the use of alcohol, especially those living on campus (Harford, Wechsler, & Muthén, 2003; Perkins,

2002). One unique consequence for this population is the potential for negative academic outcomes, such as a lower grade point average (GPA; Read et al., 2007; Wolaver, 2002). However this association has been questioned, given the often cross-sectional nature of studies that report a link between alcohol use and low GPA (Paschall & Freisthler, 2003; Wood, Sher, Erickson, & Debord, 1997). When high school grades were taken into account, there was no association between problematic substance use and academic performance in university (Paschall & Freisthler, 2003; Wood et al., 1997).

Violence, aggression, and injuries. In general, the use of alcohol has been linked to increases in injuries that led to hospital visits (World Health Organization, 2000). Many reported injuries, across international emergency room departments have been linked to alcohol consumption (Ye & Cherpitel, 2009). Causes of sustained injuries are varied, and have been reported to result from motor vehicle accidents, falls, and assaults, among other causes (Ye & Cherpitel, 2009). There seems to be a moderate dose-response relationship between alcohol consumption and the risk of sustaining an injury (Ye & Cherpitel, 2009).

While risk for any injury has been related to alcohol consumption, violent injuries are also more likely to occur (Borges, Mcdonald, Cherpitel, Orozco, & Peden, 2009). Aggressive behaviour can occur as a result of alcohol use (Borges et al., 2009). Intentional violent injuries, such as violence against oneself or others, had a particularly strong association with alcohol consumption, compared to non-violent injuries, across cultural context (Borges et al., 2009). While impaired balance and cognition account for non-intentional injuries, it seems that additional mechanisms are implicated in intentional violence (Borges et al., 2009). It is possible that alcohol lowers inhibitions that normally prevent violent behaviour, in combination with an increased sense of power (Hoaken & Stewart, 2003). That said, aggression tends to occur

primarily among individuals who have dispositional levels of aggression regardless of alcohol consumption (Giancola, 2002). There is also the possibility that alcohol may cause some individuals to become aggressive (Borges et al., 2009). Additionally, long-term use of alcohol may lead to aggressive behaviour, perhaps due to extensive neurological impairment (Young, Sweeting, & West, 2008).

One area that has received little attention is the engagement in suicidal behaviour while drinking. Alcohol use has been implicated as a potential factor in suicides and suicidal behaviour (Cherpitel, Borges, & Wilcox, 2004). Suicidal ideation has a distinct relationship to the use of alcohol to cope, even above known associations between symptoms of depression and hopelessness with drinking (Gonzalez & Hewell, 2012). Also, university students who experienced suicidal ideation tended to drink in excess, and also experience alcohol related problems (Gonzalez, Bradizza, & Collins, 2009). The relationship between alcohol use and depression is complex and reciprocal; that is, depressive symptoms contribute to alcohol use and alcohol use contributes to depressive symptoms (Mushquash, Stewart, Sherry, Sherry, Mushquash, & MacKinnon, 2013), thus making it difficult to parse out the unique relationship between alcohol use and suicide (Borges et al., 2009). Nonetheless, the link between suicide and alcohol use has been established (Brent, Baugher, Bridge, Chen, & Chiapetta, 1999; Cherpitel et al., 2004).

Solitary heavy drinking seems to have a different relationship to suicide than social alcohol use. Individuals who engaged in solitary heavy episodic drinking scored significantly higher on measures of depression, hopelessness, and suicidal ideation than those who only engaged in social heavy episodic drinking (Gonzalez & Skewes, 2013). Furthermore, both drinking while experiencing low mood, and heavy episodic drinking, were strongly associated

with suicidal behaviour (Schilling, Aseltine, Glanovsky, James, & Jacobs, 2009). Heavy episodic drinking was related to an increased risk for suicide attempts among those who reported prior suicidal ideation, and to an equal degree for those who did not report prior suicidal ideation (Schilling et al., 2009). This risk for suicide is especially troublesome, as it may not be detected prior to an attempt (Schilling et al., 2009). Thus, the effects of intoxication may be particularly important to understand when unplanned suicidal behaviour occurs. Some of the proposed mechanisms involved with unplanned suicidal behaviour while intoxicated include: increased disinhibition and impulsivity, increased aggression and negative affect, and increased cognitive constriction which can limit the recognition of alternative coping strategies (Hufford, 2001; Sher, 2006; Schilling et al., 2009).

In addition to suicidal behaviour, engaging in self-harm has not been adequately captured in assessment measures of alcohol-related consequences. Nonsuicidal self-injury (NSSI) is the intentional infliction of injury upon oneself, without the intention to end one's life (Gratz, 2003). While under the influence of alcohol, the likelihood of engaging in NSSI may increase due to lowered inhibition, and perhaps in combination with heightened emotional states. NSSI has been related to the development of alcohol use disorders, with impulsivity and emotional regulation difficulties proposed as underlying factors (MacLaren & Best, 2010).

Sexual behaviour. Alcohol consumption has been associated with risky sexual behaviour (Justus, Finn, & Steinmetz, 2000; Testa & Collins, 1997). The engagement in sexual behaviour while intoxicated has been explained by impairments in one's ability to successfully evaluate sexual risk, beliefs that alcohol can heighten a sexual experience, or using alcohol as an excuse for engaging in sexual behaviour (Justus et al., 2000). Perpetrators of sexual violence are often under the influence of alcohol (Abbey, McAuslan, & Ross, 1998). Specifically, male

perpetration of sexual coercion or assault occurs frequently in university populations, with rates reported between 10 and 30% (Abbey & McAuslan, 2004; Hines & Saudino, 2003; White & Smith, 2004; Zinow & Thompson, 2014). Alcohol and drug use have been associated with single and repeat sexual offences by university students (Zinzow & Thompson, 2014). Despite uncertainty about the causal factors, alcohol consumption leads to risk taking in sexual activities. Individuals are more likely to have unprotected sex or to engage in unplanned intercourse with a partner they had just met (Justus et al., 2000).

Criminal behaviour. Alcohol use has been linked to criminal behaviour in young adults, although the direction of causation is unclear (Young et al., 2008). It is possible that alcohol facilitates antisocial behaviour through disinhibition of pre-frontal brain functioning (Young et al., 2008). A reciprocal relationship was found between alcohol misuse and antisocial behaviour among past-year drinkers (Young et al., 2008). Antisocial involvement was also temporally related to future alcohol misuse, indicating the possibility of a causal relationship (Young et al., 2008). As well, individuals who committed a violent offence tended to misuse alcohol prior to the offence (Arsenault, Moffit, Caspi, Taylor, & Silva, 2000). The relationship between alcohol use and antisocial behaviour is complex. The association between these two behaviours, despite the direction of the relationship being unclear, allows for antisocial behaviour to be a marker for problematic substance use (Arsenault et al., 2000; Young et al, 2008).

Other evidence for the link between alcohol use and criminal behaviour is shown in the literature that demonstrates the co-morbidity between antisocial personality disorder, and behaviours, with substance abuse disorders (Compton, Conway, Stinson, Colliver, & Grant, 2005). Despite these known associations, engaging in antisocial behaviour while intoxicated has not always been captured on measures of severity of substance use. This may be in part due to

the reluctance to probe matters of an illegal nature when responses are not anonymous, such as in research and clinical settings.

Eating Behaviour. While eating behaviour is not necessarily a problematic consequence of alcohol consumption, it does often co-occur with substance use. Bulimia and alcohol use disorders often co-occur, (Holderness, Brooks Gunn, & Warren, 1994) with comorbidity rates for bulimia and any substance use disorder around 17% (Holderness, Brooks Gunn, & Warren, 1994). The behaviour of eating more than planned while intoxicated has not been included in current measures of alcohol consequences. It is possible that this behaviour could serve as an indicator of alcohol problems, while it may not in itself be problematic. It is known that the consumption of food may be a protective strategy to prevent intoxication or ameliorate physical consequences of alcohol consumption, if used correctly (Martens et al., 2004).

Sex Differences in Consequences

In general, males tend to score higher on tools that measure consequences of alcohol consumption (Allen, 2003; Engs & Hanson, 1990; Hammer & Pape, 1997). A sex discrepancy was also apparent as males reported more of both positive and negative consequences compared to females (Park, 2004). It has been suggested that measures fail to capture behaviours and consequences experienced more often by females. Yet, it is unclear whether a bias exists in the sample of behaviours that are assessed with these tools (Allen, 2003). For example, males often have higher scores on alcohol problem inventories, yet males and females tend to have similar ratings of negative feelings associated with alcohol consumption (Maddock et al., 2001). An instrument that accounts for the underlying factors of consequences associated with alcohol consumption may help to determine sex differences. Of note, although alcohol use remains lower

in females than males, subsequent negative consequences among undergraduate females has been increasing (Merrill, Reid, Carey, & Carey, 2014).

Positive Consequences

One reason that individuals do not refrain from drinking is that they have reported that not all consequences are negative. The experience of positive consequences due to alcohol consumption is a factor to consider in understanding the reasons for drinking (Corbin, Morean, & Benedict, 2008; Lee, Maggs, Neighbors, & Patrick, 2011; Park, 2004). Positive consequences (e.g., relief from stress and tension) were associated with drinking behaviour, beyond the variability accounted for by the experience of negative consequences (Corbin et al., 2008). Positive expectancies of alcohol consumption have been associated with problematic drinking, drinking to cope with stress, and higher levels of alcohol consumption (Armeli, Carney, Tennen, Affleck, & O'Neil, 2000; Kushner, Sher, Wood, & Wood, 1994; Nolen-Hoeksema, 2004).

Additionally, consequences that are thought to be negative, a hangover for example, have not been appraised as being a negative experience (Mallett, Bachrach, & Turrisi, 2008). Individuals also tend to believe that it is normative to experience consequences as less negative than they are actually perceived, and may be less likely to modify their drinking behaviour (Lee, Geisner, Partick, & Neighbors, 2010). Additionally, university students reported experiencing significantly more positive than negative consequences from drinking (Corbin, Morean, & Benedict, 2008; Park, 2004). The experience of positive consequences has a unique contribution to engaging in alcohol consumption (Corbin et al., 2008).

Current Measures of Alcohol Consequences

Alcohol use has been examined with a variety of different assessment instruments, each providing unique information and fulfilling distinct uses. Some instruments are designed to

screen for alcohol use problems, with the goal of identifying individuals who may require treatment or further assessment. Other instruments are meant to help with diagnosis, capturing each of the domains outlined in diagnostic manuals and used to guide treatment planning (Allen, 2003). Fewer instruments have been designed for research purposes, although currently available instruments are often used for that purpose.

Commonly used instruments in research that have examined alcohol consequences in college/university samples are the Young Adult Alcohol Problems Screening Test (YAAPST; Hurlburt & Sher, 1992), the Young Adult Alcohol Consequences Questionnaire (YAACQ; Read, Kahler, Strong & Colder, 2006), the College Alcohol Problem Scale and the revised version (CAPS & CAPS-R; O'Hare, 1997), the Rutgers Alcohol Problem Inventory (RAPI; White & Labouvie, 1989), and the Alcohol Use Disorders Identification Test (AUDIT; Babor, La Fuente, Saunders, & Grant, 1992). The Drinker Inventory of Consequences (DrInc; Miller, Tonigan, & Longabaugh, 1995) was specifically designed to assess consequences associated with alcohol problems, although it is used less frequently in research studies with student populations. More recently an instrument was developed to examine positive consequences associated with the consumption of alcohol, the Positive Drinking Consequences Questionnaire (PDCQ; Corbin et al., 2008).

Young Adult Alcohol Problems Screening Test. The YAAPST (Hurlburt & Sher, 1992) is a 27-item measure that assesses the frequency of consequences related to using alcohol. The YAAPST was developed to measure alcohol problems in university students. Respondents indicate the amount of times they have experienced a specific consequence in the past year. Examples of problems include: experiencing a hangover, arriving late for school, driving under the influence, or getting into a physical fight. The response options range from "never" to "40 or

more". The internal consistency of this measure was acceptable (Hurlbert & Sher, 1992). Low endorsement rates have been reported, and in some cases items were endorsed by less than 5% of the sample (Kahler, Strong, Read, Palfai, & Wood, 2004; Mallett, et al., 2011). Gender differences were found, thus the YAAPST may not capture female problematic behaviours associated with drinking (Kahler et al., 2004).

Young Adult Alcohol Consequences Questionnaire. The YAACQ (Read et al., 2006) was developed to address the gaps identified by Kahler and his colleagues (2004), such as a potential floor effect and discrepancies between sexes. Items were added to cover less serious alcohol consequences (e.g., "While drinking I have said or done embarrassing things"; Read et al., 2006). The YAACQ is 48-item self-report measure intended to examine eight domains of alcohol consequences. Dichotomized response options were created on the YAACQ to help differentiate alcohol problem severity (Read et al., 2006). The items for these domains were developed to capture all the symptoms of abuse and dependence that were outlined in the DSM-IV (Read et al., 2006).

The YAACQ captures eight domains of potential consequences of alcohol use: Social-Interpersonal Consequences, Impaired Control, Self-Perception, Self-Care, Risk Behaviors, Academic/Occupational Consequences, Physical Dependence, and Blackout Drinking (Read et al., 2006). Confirmatory factor analysis indicated that the eight domains of consequences were statistically different, but that all eight factors load onto a single, higher-order factor (Read et al., 2006; Read, Merrill, Kahler, & Strong, 2007). The time frame for experiencing consequences was within the previous year, which makes it difficult to assess change. This scale has demonstrated acceptable internal consistency for the overall and individual domains (i.e., coefficient alphas ranged from .79 – .89; Read et al., 2008).

There is also a short version of this measure, the Brief YAACQ, which includes 24 items from the original scale that were found to best discriminate levels of alcohol consequences using Rasch model analysis (Kahler et al., 2005). The brief version had acceptable internal consistency (α = .83) and was correlated with other measures of alcohol problems (Kahler et al., 2005).

College Alcohol Problem Scale and College Alcohol Problem Scale-Revised. The College Alcohol Problem Scale (CAPS) was originally developed to capture three dimensions of problems associated with alcohol consumption: psychological (e.g., depression, anxiety, suicide), interpersonal (e.g., fights, unplanned sexual behaviours), and community (e.g., driving under the influence) consequences (O'Hare, 1997). Items for the CAPS were selected from a variety of standardized and unstandardized tools used in alcohol use research (O'Hare, 1997). Original validation of the scale was done with a convenience, and perhaps biased, sample comprised of students who were required to pay a fine to the University (N = 315). After the initial pool of 20 items was analyzed through principal component analysis, the researcher retained 10 items that contributed to two scales: Socio-Emotional Problems and Community Problems. Of note, the decision by the authors to label one factor "Community Problems" is somewhat arbitrary as it includes physiological consequences of alcohol consumption (e.g., vomiting). Concurrent validity was measured by examining the association of the CAPS to level of alcohol consumption and problematic alcohol use (O'Hare, 1997).

The CAPS was shortened to include only eight of the original 20 items (CAPS-R; Maddock et al., 2001). As the original factor structure fit the data poorly, eight items that contributed to a two-factor structure were retained to make up two scales, "Social Problems" and "Personal Problems" (Maddock et al., 2001). The response format was changed to a numerical, Likert-type scale. Participants are asked to indicate the frequency of consequences in

the past year as a result of drinking alcoholic beverages; response options range from 1 (never) to 6 (10 or more times). Higher scores on the CAPS-R were associated with more frequent consumption of alcohol (Maddock et al., 2001). The scale was also correlated to scores on the YAAPST (Hurlburt & Sher, 1992).

Rutgers Alcohol Problems Index. The RAPI (White & Labouvie, 1989) is one of the most widely used tools in research with student samples (Devos-Conby & Lange, 2008). This tool was originally meant to aid in the diagnosis of adolescent problem drinking. The uni-dimensional scale was developed through factor analysis of 53 symptoms or consequences and contains 23 items (White & Labouvie, 1989). While it was initially developed with youth aged 12-18 (N = 1308), and re-rested with this sample when they were ages 15-21. This tool is used frequently in research with undergraduate samples to assess the level of problems associated with alcohol consumption (e.g., Larimer, Turner, Mallett, & Geisner, 2004; Neighbors, Lee, Lewis, Fossos, & Larimer, 2007; Stewart, Loughlin, & Rhyno, 2001).

Alcohol Use Disorders Identification Test. There are some instruments that have been used in both research and clinical settings to screen for alcohol consequences. The AUDIT (Babor et al., 1992) is a widely used instrument that was developed by the World Health Organization. This 10-item scale demonstrated reliable identification of individuals who meet criteria for alcohol use disorders (Clements, 1998; Fleming, Barry & McDonald, 1991). The AUDIT has been associated with distal indicators of problematic drinking, such as unemployment rates (Allen, Litten, Fertig, & Babor, 1997). The AUDIT was found to have high internal consistency across several studies, as well as sufficient specificity to identify alcohol use disorders, but conflicting results pertaining to the sensitivity of the measure (Allen et al., 1997; Clements, 1998; Fleming, Barry, & McDonald, 1991). The brevity of this scale limits the extent

to which it explicates problems and consequences of alcohol consumption (Devos-Conby & Lange, 2008); it serves a purpose for screening, but lacks the depth of a measure for research studies. Although the AUDIT is widely used, it samples only a limited range of problems linked to alcohol use (Devos-Conby & Lange, 2008).

Drinker Inventory of Consequences. The DrInc (Miller et al., 1995) was developed to examine exclusively the consequences of drinking, rather than consumption or dependence. This 50-item scale is comprised of five domains of alcohol consequences: physical, interpersonal, social responsibility, interpersonal, and impulse control. Different subscales of the DrInc have been differentially related to other outcome variables. Scores on the impulse control and interpersonal consequences subscales predicted alcohol consumption, in line with prior research that has linked impulsivity and interpersonal skills with substance use problems (Blume, Schmaling, & Marlatt, 2006). The measure demonstrated temporal stability across measurement times. A shorter version of the DrInc, the Short Index of Problems (SIP; Miller et al., 1995) was also useful for assessing overall levels of consequences due to alcohol use (Forcehimes, Tonigan, Miller, Kenna, & Baer, 2007).

Positive consequences measures. Self-reported drinking behaviour has been related to positive expectancies (Fromme & D'Amico, 2000; Fromme, Stroot, & Kaplan, 1993). A few instruments have been developed to assess behaviours associated with alcohol consumption that are rewarding or viewed by the individual as positive. Park (2004) developed a measure by modifying items from an existing measure of positive expectancies associated with drinking alcohol (see Kushner et al., 1994). The items were altered to assess actual consequences from drinking, rather than expectancies (Park, 2004; Park & Grant, 2005). The decision to include only 11 items from the original scale developed by Kushner et al. (1994) is not well described.

The internal consistency of this scale was acceptable (Park, 2004; Park & Grant, 2005). The validity of the scale is uncertain.

Despite the intentions behind the scale development, the measure used by Park (2004) has been criticized for being too similar to expectancy items (Corbin et al., 2008). Differentiation from expectancy is important for understanding the contribution of positive drinking consequences to alcohol consumption (Corbin et al., 2008). The Positive Drinking Consequences Questionnaire (PDCQ; Corbin et al., 2008) was developed to supplement instruments that assess negative consequences of drinking. The PDCQ was found to be reliable as it had strong internal and split-half reliability (Corbin et al., 2008). Through principal component analysis the scale was found to have a single-factor structure. Incremental validity was demonstrated, as the PDCQ measure was associated with more severe drinking behaviour (Corbin et al., 2008).

Gaps in Current Instruments

The amount of drinking on university campuses has been the focus of prevention efforts (Perkins, Haines, & Rice, 2005), local programming (Baer, Kivlahan, Blume, McKnight, & Marlatt, 2001), and national and provincial mandates (US Department of Health and Human Services, 1997; Centre for Addictions Research of British Columbia, 2008). Instruments are often developed to help identify students who require interventions, such as the CAPS-R (Maddock et al., 2001). However, this approach to scale construction limits the items that are included, and fails to capture the broad range of behaviours and consequences associated with alcohol consumption. Instruments have been criticized for missing less severe consequences (Kahler et al., 2004). In research, the goal is to understand behaviour, rather than identify and categorize individuals who require intervention. Additionally, many instruments measure severity of alcohol dependence, rather than consequences that can result from acute alcohol

consumption, which are important considerations in a student population (Maddock et al., 2001). The limitations of current tools fall into three categories; construct limitations, lack of positive consequences, and lack of individual rating of the valence of the consequence. Finally, the time period of assessment is a consideration for research tools, as heavy episodic drinking has been shown to be trait-state (Mushquash, Sherry, MacKinnon, Mushquash, & Stewart, 2014).

Construct limitations. Some measures use subjective ratings of whether alcohol use is problematic. The basis for this language likely stems from previous criteria of the Diagnostic and Statistical Manual of Mental Disorders – Text Revision (i.e., DSM-IV-TR, APA, 2000) for diagnosis, which placed an emphasis on personal distress for a diagnosis to be made. This is not useful when researchers attempt to examine behaviours and consequences associated with an alcohol use disorder. For example, an individual may present with a degree of alcohol related problems, yet the use of alcohol has not caused severe enough consequences to warrant personal distress. Or, the individual may have a defensive view of the severity of the problem, thus asking questions in a way that places the emphasis on the individual's perception of the problem may lead to inaccurate reporting. A behavioural measure of alcohol consequences may help to circumvent some of these problems with the individual's perception of problems.

Individuals may be reluctant to accurately report symptoms due to positive impression management and social desirability response biases. Measures of alcohol and drug use that have high face validity have been related to social desirability and denial (e.g., Skinner, 1982). However, this concern may be more relevant to screening tools used in clinical settings where the respondent's anonymity is not guaranteed. In research settings where anonymity is guaranteed, social desirability may be less of a concern. This also allows researchers to probe

socially unacceptable or personally embarrassing behaviours such as aggression and criminal behaviour.

Several important behaviours have been excluded from instruments (Devos-Conby & Lange, 2008). Suicidal thoughts and self-harm (Cherpitel et al., 2004; Smith, Branas, & Miller, 1999), disordered eating (Holderness et al., 1994), criminal behaviours (Compton et al., 2005), and aggressive and violent behaviours (Borges et al., 2009) often co-occur with alcohol consumption despite these being neglected from current measures.

Two possible reasons neglecting criminal behaviours from these measures may include inaccurate reporting as respondents are unlikely to report criminal behaviour unless they are guaranteed anonymity, and clinicians may find themselves in an ethical dilemma if a client reports criminal behaviour. Although one item of the CAPS-R addresses engaging in illegal activities as the result of consumption of alcohol, this item is conceptually confusing as it also includes drug use: "As a result of drinking alcoholic beverages I…engaged in illegal activities associated with drug use" (Maddock et al., 2001, p. 391). Omitting criminal, aggressive, self-harm, and suicidal behaviours from alcohol problems scales may limit our understanding of the alcohol related consequences.

Positive consequences associated with alcohol use. Given the lack of assessment tools that capture both domains of consequences, a scale was developed to assess both positive and negative consequences of alcohol consumption (Lee et al., 2011). The separate subscales of the measure were found to be internally consistent (Lee et al., 2011), although other facets of reliability and validity of the scale were not reported. It did not appear that the scale had been empirically tested prior to administration for the study, although this is unclear. In regression analyses, positive consequences explained an additional 5% of the variance after accounting for

the negative consequences in the prediction of drinking frequency (Lee et al., 2010). These results indicated that measures are needed to identify the positive and negative consequences from drinking, to better understand the reasons individuals continue to consume alcohol despite negative consequences. In addition, the subjective rating of the salience of consequences would be useful (Mallett et al., 2013).

Valence of consequences. The valence of consequences could help determine motivations for drinking, or reluctance to stop drinking (Mallett et al., 2013). The valence (i.e., positive or negative) and the strength of consequences are not determined by current measures. Furthermore, the reasons for positive and neutral evaluations of consequences that were presumed to be negative (e.g., hangover) are not well understood (Mallett et al., 2008).

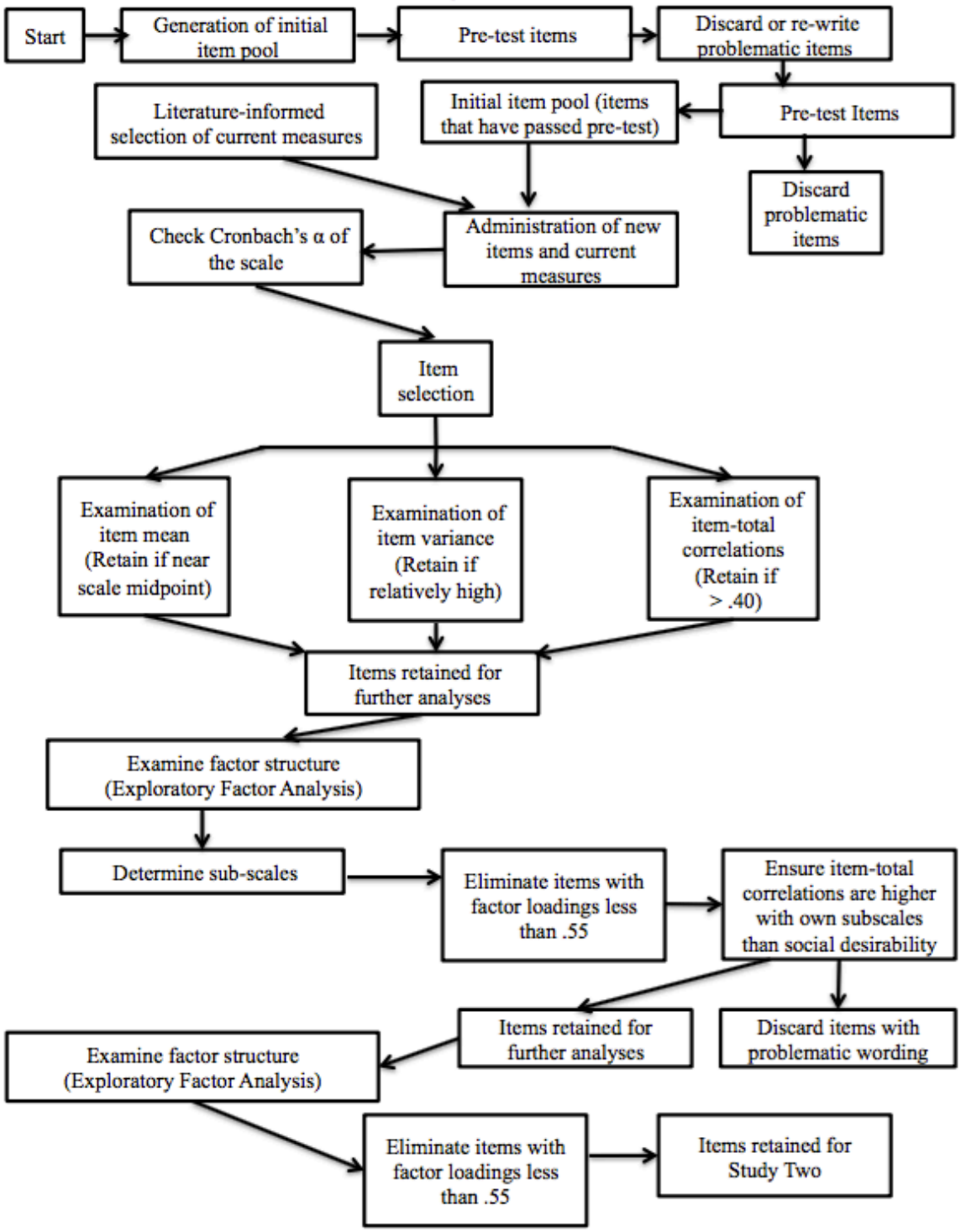
Current measures may be adapted to address the respondent's evaluation of the consequences (Mallett et al., 2013). Lee et al. (2010) asked participants to rate their evaluations of consequences of items on the YAAPST (Hurburt & Sher, 1992). Participants were asked how negative the item would be if they were to experience it on a scale from "extremely positive" to "extremely negative" (Lee et al., 2010). Individuals have indicated experiencing more positive consequences after drinking alcohol than negative ones (Corbin et al., 2008; Park, 2004), although the individual's evaluations of these consequences have rarely been empirically determined (Lee et al., 2010).

Study One

In the first study, current measures and additional items were administered to a university sample to assess the underlying factors. Through item performance indices, and rational-empirical scale construction methods, a preliminary measure was developed: the Consequences of Alcohol Measure (CAM).

New items were developed through expert consultation (i.e., four PhD level psychologists) and current research regarding alcohol consequences. New items for eating behaviours were modified from a current binge-eating scale (see Stice, Telch, & Rizvi, 2000). Additionally, items that were problematic on current measures, such as double-barrelled questions, items that were conceptually confusing, or where the reading difficulty was above the recommended level of grade six (Streiner & Norman, 2008) were revised. The new items were pre-tested with students in the Substance Use and Research Group laboratory at Lakehead University. The new items and existing alcohol consequence scales were then administered to a sample of undergraduates. Refined item selection was accomplished through empirical evaluation (Newby, 2010). Items were retained based on their individual properties (e.g., variance, mean) and their relationship to the overall scale, the sub-factors of the scale. It was predicted that an exploratory factor analysis would reveal distinct factors (i.e., different types of consequences). The model for scale development is outlined in Figure 1.

Figure 1.
CAM Development Model: Study One



Study Two

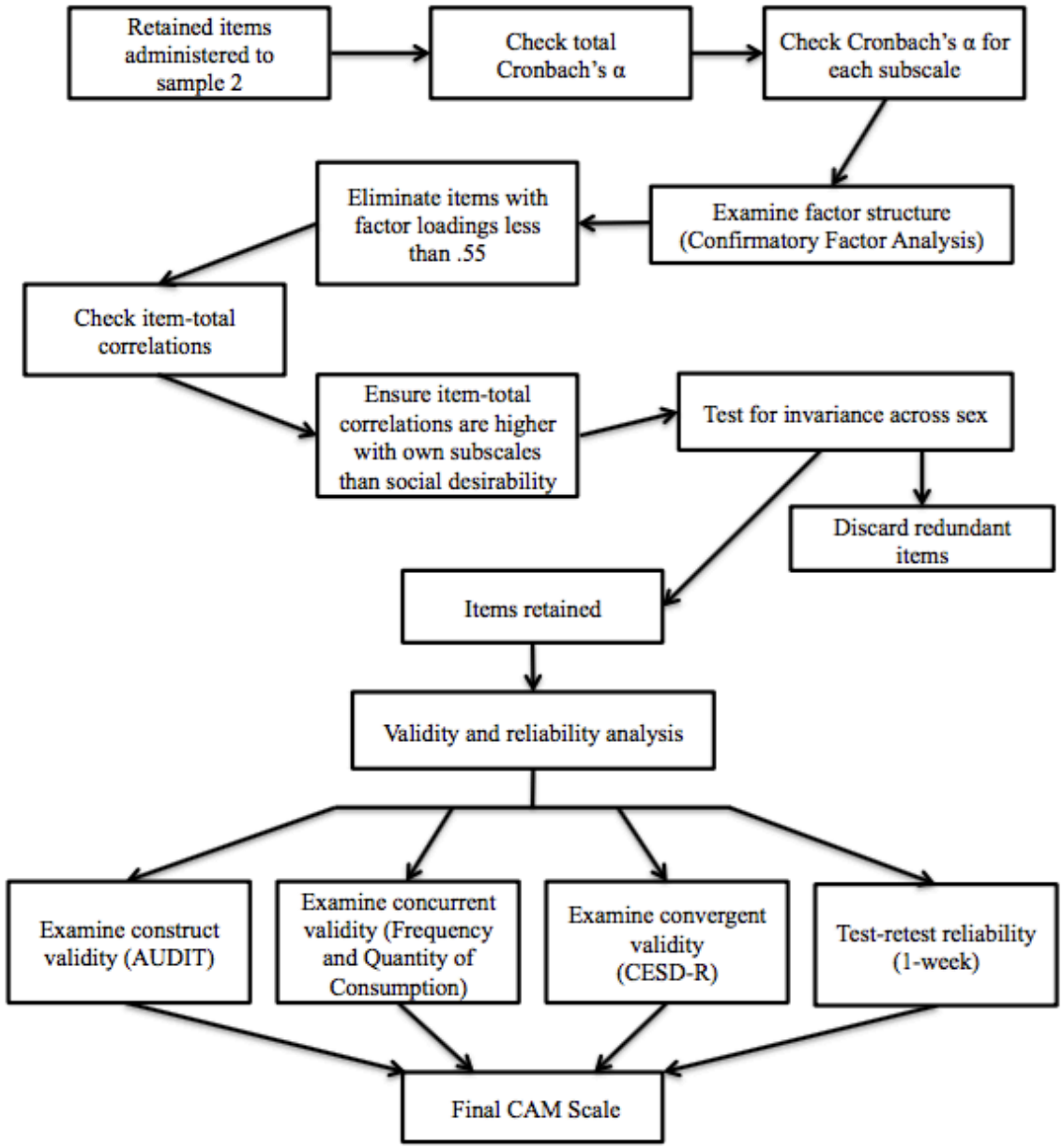
In Study Two, the new measure was assessed through confirmatory factor analysis (CFA) to examine the latent structure of the measurement scale (Brown, 2006). CFA is a method of evaluating the underlying dimensions of the instrument and examining the pattern of item-factor relationships (Brown, 2006). This procedure also allows for the evaluation of the factors by sex and age, to determine if the measure is biased based on sex of the respondent. CFA provides evidence for convergent and discriminant validity of constructs measured. Convergent validity is presumed if the two distinct factors are interrelated and found to load on the same overarching factor (e.g., alcohol use consequences). Discriminant validity is shown when the factors are not too highly inter-correlated, and thus represent theoretically distinct constructs. Confirmatory factor analysis is more sophisticated than traditional methods of scale evaluation (i.e., correlation or multiple regression) because it accounts for inherent measurement error (Brown, 2006).

The criterion validity of the scale was examined by computing correlations between the scale and the frequency and quantity of alcohol consumed on a regular basis. Additionally, convergent validity can be determined by examining the relationship between the measure and mental health variables that have been related in prior research to alcohol consumption. To assess the convergent validity of the scale, levels of depression were assessed and compared to scores on the CAM, as the link between depressive symptoms and alcohol consumption is well established in research (Hartka et al., 1991).

It was predicted that the CFA would retain the same factors that were established in Study One. It was also expected that the CAM would demonstrate strong internal consistency and the test re-test reliability would be high, over a one-week interval. As the CAM was developed to assess a broad range of behaviours for males and females, it was predicted that the

sex differences would be significant for the total scores on the measure, but that the factorial model would not be different across sex. It was also hypothesized that higher scores on the CAM would be related to higher levels and higher frequency of alcohol consumption. Finally, it was hypothesized that higher scores on the CAM would be related to higher levels of symptoms of depression. The model for scale development is outlined in Figure 2.

Figure 2.
CAM Development Model: Study Two



CHAPTER 2. METHODS

Study One

Participants

Students at Lakehead University were recruited through poster advertisements (see Appendix A), classroom information sessions, and through the Lakehead University research pool where students can participate in research studies to gain bonus credit toward their undergraduate psychology courses. Eligible students who participated received 1% extra credit toward their final grade, or opted to be entered in a draw with the possibility of winning $100. Participation was voluntary, and confidentiality and anonymity were maintained. A total of 606 participants logged on to the website to complete the study. A large sample was required to complete a factor analysis (DeVellis, 2012; Tabachnick & Fidell, 2007).

Participants were categorized as drinkers or non-drinkers, using an established criterion of having consumed alcohol at least once in the last three months (one standard drink was defined as one bottle/can of beer, one glass of wine, or one shot of hard liquor, either straight or with a mixer; Mushquash, Stewart, Mushquash, Comeau, & McGrath, 2014). Participants who were categorized as non-drinkers were excluded from the analysis (n = 9). A total of 14 participants failed to respond to this item that canvassed whether they consumed alcohol; thus they were also excluded from further analyses. The data was checked for infrequent responding. Participants who endorsed two or more infrequency items on the Jackson Personality Research form were removed (n = 62). An additional 40 participants had 100% missing data and were removed from the dataset. The remaining sample was used for the following analyses (N = 481).

There is no consensus on the number of participants required to complete a factor analysis. For example, a ratio of 5:1 has been suggested (Stevens, 1996), while others suggest the

minimum ratio of sample size to variables required to perform an EFA is 4:1 (Velicer, Eaton, & Fava, 2000), and others indicate that a minimum of 300 participants is appropriate for a factor analysis (Tabachnick & Fidell, 1996). Further, others have reported that when communalities between factors are high, the sample size requirements are lower (MacCallum, Widaman, Zhang & Hong, 1999). Thus, a total of 481 participants was determined to be sufficient.

Descriptive statistics for the final sample were examined. Biological sex was reported by participants; n = 92 males and n = 321 females participated in the study (n = 2 participants did not respond). Gender was also reported (n = 95 men; n = 319 women; one participant did not respond). The mean age of participants was 21.17, the mode was 18 and the median was 20, while the age range of participants was 17-48 years. Participants identified their ethnicity: n = 373 (89.88%) "White/Caucasian"; n = 11 (2.65%) "Aboriginal"; n = 7 (1.69%) "Asian"; n = 7 (1.69%) "Black"; n = 16 (3.86%) "Multiracial"; n = 1 (.00%) "Other".

Measures

Demographic information. A brief demographic sheet asked participants to indicate their sex, gender, age, ethnicity, year in university, and overall course average.

Alcohol consumption. Participants reported on various indices of alcohol consumption within the past 90 days. One standard drink was defined as one bottle/can of beer, one glass of wine, or one shot of hard liquor, either straight or with a mixer (C. J. Mushquash et al., 2014). The frequency and quantity of alcohol consumption were examined (see Appendix C). Participants also reported on heavy episodic drinking behaviours. They indicated how often in the past 7 days they consumed four or more drinks containing any kind of alcohol within a two hour time period (i.e., an established criteria for heavy-episodic drinking). Participants also

reported the greatest number of drinks they consumed in a two-hour period in the last seven days. These items were developed in previous research (A. R. Mushquash et al., 2013).

Young Adult Alcohol Consequences Questionnaire. The YAACQ has 48 items that cover eight domains of alcohol consequences (Read et al., 2006). Item response options are dichotomized, either yes or no to indicate whether the consequence has occurred in the past year. The YAACQ has been associated with the frequency of alcohol consumption, the quantity of alcohol consumed, and the RAPI, which provided evidence of concurrent validity (Read et al., 2006). Internal consistency for the individual domains and the overall scale has been high; coefficient alpha's ranged from .79 – .89 (Read et al., 2008).

College Alcohol Problem Scale-Revised. The CAPS-R is an 8-item scale that was developed specifically for college students (Maddock et al., 2001). Response options range from "never" to "10 or more times". Concurrent and criterion validity was shown as scores were related to heavy alcohol consumption and another measure of alcohol consequences, such as the YAAPST (Maddock et al., 2001; O'Hare, 1997).

Rutgers Alcohol Problem Index. The RAPI is a 23-item scale that asks individuals the frequency of a given behaviour on a scale from 0 (never) to 4 (more than 10 times), during the past three years (White & Labouvie, 1989). The RAPI is a well-established scale; it has been used extensively in research, with university students (Borsari, Neal, Collins, & Carey, 2001; Carey & Correia, 1997; Corbin et al., 2008; Kahler et al., 2005; Levy & Earleywine, 2003; Read et al., 2006). The internal consistency is consistently high (e.g., Cronbach's α = .92; Corbin et al., 2008). Construct and criterion validity have been shown across studies (Borsari et al., 2001; Carey & Correia, 1997; Corbin et al., 2008; Kahler et al., 2005; Levy & Earleywine, 2003; Read et al., 2006). For example, scores on the RAPI have been related to amount, and frequency of

alcohol consumption and scores on the YAACQ (Read et al., 2006).

The Alcohol Use Disorder Identification Test. The AUDIT (Saunders, Aasland, Amundsen, & Grant, 1993; Saunders, Aasland, Babor, De La Fuente, & Grant; 1993) is a 10-item measure that assesses problems related to drinking. Scores on the AUDIT were examined for those who consumed alcohol and those who did not; ROC analysis of group membership for hazardous and harmful alcohol consumption showed good specificity and sensitivity (Saunders et al., 1993), although future studies indicated the scale had inadequate sensitivity (Clements, 1998; Flemming et al., 1991). Inter-item correlations were acceptable for the 10 items (Saunders et al., 1993) and the internal consistency of the scale is high (Cronbach's $\alpha = .94$; O'Hare & Sherrer, 1999). The scale was also validated cross-nationally (Saunders et al., 1993) and has been used with undergraduate populations (Aertgeerts et al., 2000; Clements, 1998; Fleming et al., 1991; O'Hare & Sherrer, 1999).

The Drinker Inventory of Consequences. The DrInC (Miller et al., 1995) assesses five domains of alcohol consequences (physical, intrapersonal, social responsibility, interpersonal and impulse control). There are 50 items, where the frequency of behaviour is rated. Outpatient and inpatient populations were examined in the validation study and the internal consistency of the scale was high (Cronbach's α between .70-.80; Miller et al., 1995). The scale was moderately related to amount of alcohol consumed ($r = .36$, $p < .001$; Forcehimes et al., 2007), which provides evidence of construct validity. Concurrent validity was shown as the DrInC was related to a measure of alcohol dependence symptoms ($r = .62$, $p < .001$; Forcehimes et al., 2007). Validity of this instrument has not been established for university students.

The Positive Drinking Consequences Questionnaire. The PDCQ (Corbin et al., 2008) includes 14 items that assesses frequency of positive consequences from drinking. The response

options range from “0” to “>10”. The PDCQ was found to be internally consistent (Cronbach's α = .88; Corbin et al., 2008) and the split-half reliability was also high: r = .796, p < .01 (Corbin et al., 2008). The PDCQ measure was associated with more severe drinking behaviour and negative alcohol consequences, providing indices of concurrent and criterion validity, as increases in drinking alcohol leads to both positive and negative consequences. Through a hierarchical multiple regression, incremental validity of the PDCQ was demonstrated as there was a unique effect of positive consequences in the prediction of drinking frequency and heavy episodic drinking (Corbin et al., 2008).

Center for Epidemiological Studies of Depression Scale – Revised. The CESD-R (Eaton, Muntaner, Smith, Tien, & Ybarra, 2004) was revised from the original scale, the Center for Epidemiological Studies of Depression (Radloff, 1977), which has been one of the most widely used measures of depression in epidemiological research (Eaton et al., 2004). The CESD-R is a 20-item measure, where the items reflect the DSM-IV criteria for depression. It is used as a screening measure for depression. The CESD-R was validated with a large sample (N =7389), in addition to a sample of undergraduate students (N = 245). The scale demonstrated convergent and divergent validity as it was positively related to anxiety and negative affect and negatively related to positive affect (Van Dam & Earleywine, 2011). It also demonstrated high internal consistency for both samples (Cronbach's $\alpha > 0.91$).

Balanced Inventory of Desirable Responding. The BIDR (Paulhus, 1994) measures self-deception, the unintentional tendency to give favourably biased but honest self-descriptions, and impression management, the intentional tendency to give favourable self-descriptions in order to be perceived better by others (Paulhus, 1994). This measure was included to control for response bias that can occur when individuals report their own levels of substance use and

associated consequences. The measure consists of 40 items rated on a seven-point Likert-type scale ranging from one (not true) to seven (very true), where higher scores indicate higher levels of social desirability. The BIDR is comprised of two subscales that measure self-deception (BIDR-SD; e.g., "I always know why I like things") and impression management (BIDR-IM; e.g., "I always obey laws, even if I'm unlikely to get caught"). The measure demonstrated adequate test-retest reliability over a five-week time period for the self-deception (r = .65) and impression management (r = .69) subscales (Paulhus, 1994). Internal consistency for the total measure is high, α = .83. The BIDR correlates highly with other measures of social desirability (Paulhus, 1994).

The Jackson Personality Research Form. The Jackson PRF (Jackson, 1984) includes a 16-item infrequency subscale that measures random responding (e.g., "I have never brushed or cleaned my teeth"). This scale can be used to help reduce error variance by eliminating participants who have randomly responded to the items.

Procedure

Participants completed the battery of measures online, via web-based survey administration software. Participants logged on to an Internet site managed by SurveyMonkey to complete the study. Once they logged on to the survey web-site, there was a brief description of the purpose of the study, which indicated that it will take approximately 40 minutes to complete. Participants read a letter of consent (see Appendix B) that described the potential risks and benefits of the study and explained that they can discontinue participation by logging off of the web-site at any time without penalty (i.e., without loss of bonus credit for participation). By clicking the "I consent to participate" button, they were directed to the battery of questionnaires. First, participants reported demographic information (see Appendix C); then participants

reported past alcohol consumption (see Appendix D). Participants who met criteria of having consumed alcohol at least once in the last three months completed the remaining questionnaires.

Participants then completed the Young Adult Alcohol Consequences Questionnaire (see Appendix E), the Positive Drinking Consequences Questionnaire (see Appendix F), the College Alcohol Problems Scale (see Appendix G), the Balanced Inventory of Desirable Responding (see Appendix H), the new items developed for the CAM (see Table 1), the Rutgers Alcohol Problems Index (see Appendix I), the Jackson Personality Research Form (see Appendix J), the Alcohol Use Disorder Identification Test (see Appendix K), the Centre for Epidemiological Studies of Depression Scale –Revised (see Appendix L) and the Drinker Inventory of Consequences (see Appendix M). Note that the items of the Jackson Personality Research Form were interspersed throughout the online questions to gage for infrequent responding throughout the completion of all measures. Finally, participants were directed to the Information Sheet (see Appendix N).

Study Two

Participants

Students at Lakehead University were recruited for participation in Study Two with poster advertisements (see Appendix A) and through the Lakehead University research pool where students can participate in research studies to gain bonus credit toward their psychology courses. Following the time 1 administration, participants were recruited by e-mail to completed time 2. Eligible students who participated were compensated with 1% extra credit toward their final grade for each portion of the study they complete (i.e., 2% if they complete the time 1 and time 2 administration). Participation was completely voluntary, with confidentiality and anonymity guaranteed.

A total of 216 participants logged on to the website to complete time 1 of Study Two. Participants were categorized as drinkers or non-drinkers, using an established criterion of having consumed alcohol at least once in the last three months. Participants who were categorized as non-drinkers were excluded from the analysis (n = 3). An additional three participants who failed to respond to this item were also excluded from further analyses. The data was checked for infrequent responding. Participants who endorsed two or more infrequency items on the Jackson Personality Research form were removed (n = 15). An additional five participants had 100% missing data and one participant had only completed demographic information at the outset of the survey. These five participants were removed from the dataset. Other missing values can be handled by the CFA in Mplus and were recoded. The remaining sample (N=189) was used for the following analyses.

Descriptive statistics for the final sample were examined. Participants reported biological sex: 41 males and 147 females participated in the study, one participant did not respond. None of the participants self-identified as "intersex". Gender was also reported (n = 42 men; n = 147 women). None of the participants identified as "other". The mean age of participants was 20.80, the mode was 18 and the median was 19, while the age range of participants was 17-62 years. Participants identified their ethnicity: n = 373 (89.88%) "White/Caucasian"; n = 11 (2.65%) "Aboriginal"; n = 7 (1.69%) "Asian"; n = 7 (1.69%) "Black"; n = 16 (3.86%) "Multiracial"; n = 1 (.00%) "Other".

The follow-up sample for the test-retest portion of Study Two consisted of 56 participants who logged on to complete the study for a second time. Infrequency totals were calculated; participants who had responded to two or more items were removed (n = 4). Using the identifier codes generated by the participant's response to items that canvassed birth month, favourite

colour, and number of the house they grew up in, data was matched for time 1 and time 2. Several of the codes did not match a code generated from the first administration, therefore could not be analyzed (n = 14). The range of time difference in completion of the measure was from six to 26 days. All but one participant completed the measure within 11 days from the first administration (i.e., this participant completed the study 26 days later). Given that this was an outlier, and the length of time was outside of a reasonable time frame of approximately one-week follow up, this participant was removed from the test-retest analysis. The final sample for the test-retest analysis was comprised of 37 participants (n = 9 males; n = 28 females), where the mean age was 20.78. The ethnicity of this sample was as follows: n = 35 (94.59%) "White/Caucasian"; n = 0 "Aboriginal"; n = 0 "Asian"; n = 0 "Black"; n = 2 (5.41%) "Multiracial"; n = 0 "Other".

Procedure

Participants completed the battery of measures online via web-based survey administration software (i.e., SurveyMonkey). The procedure was the same as outlined in Study One. Participants read a letter of consent (see Appendix O) that described the potential risks and benefits of the study and explained that they can discontinue participation by logging off of the web-site at any time without penalty (i.e., without loss of bonus credit for participation). By clicking the "I consent to participate" button, they were directed to the battery of questionnaires. Participants completed the demographic information sheet (see Appendix C), and alcohol consumption questions (see Appendix D). Participants who endorsed having consumed alcohol at least once in the last three months (one standard drink is defined as one bottle/can of beer, one glass of wine, or one shot of hard liquor, either straight or with a mixer) completed the remaining questionnaires: the CAM (see Appendix Q), the Balanced Inventory of Desirable Responding

(see Appendix H), the AUDIT (see Appendix L), the Centre for Epidemiological Studies of Depression Scale –Revised (see Appendix M), and the Jackson Personality Research Form (see Appendix K). Note that the items of the Jackson Personality Research Form were interspersed throughout the online questions to gage for infrequent responding throughout the completion of all measures. Finally, participants were directed to the Information Sheet (see Appendix O). Participants were then invited by e-mail to complete all the same measures one week after the initial administration.

CHAPTER 3. RESULTS

Study One

Data Cleaning

Descriptive statistics for each of the scales were examined to ensure no errors in coding. The means and ranges for each measure are reported in Table 2. Data were examined as a summary of all continuous variables since analyses primarily involved the use of ungrouped data (Tabachnick & Fidell, 2007). Skewness and kurtosis were examined for the totals of each scale and are reported in Table 3. With large samples (i.e., 200+ cases) skewness and kurtosis will not make an important difference in the analysis (Tabachnick & Fidell, 2013).

A visual analysis of the data revealed that the valence questions of the CAM were not answered frequently, prior to deletion of cases with missing values. The mean number of missing values for the valence questions was $M = 19.98$ out of a possible 71 items, which is equal to on average 28% missing values. However, the valence questions of the CAM were not relevant to the factor analysis, thus they were removed for the analysis in Part One.

Missing data can be handled by several methods, yet some procedures in SPSS have been criticized for having a number of shortcomings (e.g., mean substitution, and listwise or pairwise deletion; Weaver & Maxwell, 2014). There is no definite cut point for an acceptable level of missing data that has been suggested and demonstrated to affect an exploratory factor analysis that uses a correlation matrix of variables as input. Despite a lack of consensus, 5% was determined to be a conservative cut point for factor analyses. Thus, cases that revealed more than 5% missing data were determined to be not adequate to include in further analyses. A matrix of expectation maximization (EM) correlations or covariances has been suggested for use as input

for an EFA (Graham, 2009; Weaver & Maxwell, 2014). Recently, Weaver and Maxwell (2014) published two macros that can be used in conjunction with Factor procedures in SPSS.

Scale Properties

Scale development procedures were informed by Brown (2006), Jackson (1971), Dawis (1987), DeVellis (2012), and, Streiner and Norman (2008). The steps of the analysis for Study One are outlined in Figure 1. In the initial phase, the internal consistency of the scale was assessed by checking Cronbach's alpha for all the items (i.e., current measures and new items). The Cronbach's alpha for the total scale with 214 items was .98. Alpha is affected by overlapping variance, thus for scales where alpha exceeds .90, it has been suggested that there may be redundancy in items for long scales, thus item deletion is necessary.

Refined item selection was accomplished through several analyses. Corrected item-total correlations provide a measure for how well an item relates to the entire set of items on the scale. Items that had an item-total correlation that was at least .40 were retained (Gliem & Gliem, 2003), displayed in Tables 4 through 9. To examine item response variability, the means of each item were examined. It has been suggested that the mean should be close to the center of the range of possible scores (DeVellis, 2012). The Likert-type scale used in this study had response options of 1, 2, 3, 4, or 5. Individual item variability and means for each scale are displayed in Tables 10 through 15[1]. The range of responses was 1 to 5, thus the true mean response would be equal to 3. However, it was found that for most items the mean score was between 1 and 2, and few of the items reached or exceeded a mean of 3. This indicated that the frequency of endorsement of consequences was fairly low for the participants included in this sample. Given the low frequency of endorsement of behaviours overall, it was decided to not use the mean as a

[1] For information purposes, item statistics for the AUDIT, CESD-R and BIDR are displayed in Tables 16, 17, and 18, respectively, although these scales were not used for CAM scale development.

method to refine items. Another method for examining item response variability is by checking the range of responses (DeVellis, 2012). Items that did not have sufficient range of responses (i.e., items where the maximum responses was 1, 2, or 3 on the 5 point Likert-type scale) were removed from further analyses (ranges of responses are also displayed in Tables 10 through 15).

The remaining items were analyzed through exploratory factor analysis (EFA) to determine the underlying domains of factors in the pool of items. Factor analysis provides an assurance that the measure captures latent variables in the development of psychometric scales; it provides confirmation of construct validity (Nunnally, 1978). In developing a new scale, EFA is useful as it allows for the exploration of the underlying factor structure without imposing preconceived constraints on variables (Brown, 2006; Hurley et al., 1997). In a comparison of different methods of exploratory factor analyses, the parallel analysis method has been found to produce accurate methods for determining the number of factors to retain (Velicer et al., 2000; Fabrigar Wegener, MacCallum, & Strahan, 1999). Parallel analysis and Velicer's MAP test are superior to other procedures as they yield optimal factor solutions (Velicer et al., 2000; Wood, Tataryn & Gorsuch, 1996). However, parallel analysis is rarely used in research (Hensen & Roberts, 2006) likely due to the difficulty of employing this method as it is not a readily available function in SPSS, and thus it necessitates several steps of data analysis through macros. However, this method has been identified as one of the most accurate (Hensen & Roberts, 2006; O'Connor, 2000) and robust method for interpretation of factors and is the least likely to lead to under or over-extraction of factors (Lance, Butts, & Michels, 2006; Velicer et al., 2000; Zwick & Velicer, 2000).

A parallel analysis was completed in SPSS, using macros developed by O'Connor (2000). Parallel analysis was conducted by comparing the obtained eigenvalues to random data

eigenvalues created by the Monte Carlo simulation method, employing 1000 permutations of the random data, using a $p = 0.05$ significance level. The raw data and randomly generated eigenvalues are displayed in Table 19. According to the parallel analysis, nine factors were identified as being significant; the tenth factor's eigenvalue was lower than the randomly generated eigenvalue (1.799960 < 1.952604), see Figure 3. It is common for the eigenvalues for trivial factors to surpass the randomly generated eigenvalues, thereby requiring trimming of negligible factors (Buja & Eyuboglu, 1992).

Another common method of interpretation is the scree test method, however it has been criticized for relying on subjective judgments (Velicer et al., 2000). In cases where the number of variables in the analysis is large and the sample size is large, the scree plot has been suggested as a method of determining the number of factors (Field, 2005). This procedure has been recommended as an adjunct procedure to other methods (Velicer et al., 2000). The scree test for the present analysis indicated a 3-factor solution (see Figure 4).

Two matrices were created with the use of a macros published by Weaver and Maxwell (2014). Matrices of expectation maximization (EM) correlations and covariances were used as input for the EFA (Graham, 2009; Weaver & Maxwell, 2014). Recently, two macros were published that can be used in conjunction with Factor procedures in SPSS. For the exploratory factor analysis, an expectation maximization correlation matrix was used as input. To aid in the interpretation of factors (i.e., constructs) that are correlated to some degree, an oblique rotation of the factors should be used (i.e., Promax; Streiner & Norman, 2008).

There are different suggestions of minimum criteria for retention of items based on item factor loadings. According to Tabachnick and Fidell (2007), items that have factor loadings less than .32 should not be interpreted. However, Comrey and Lee (1992) have more stringent

criteria, and suggested that items with loadings .45 and above are fair, and items above .55 are good. A promax rotation was employed, with a specification to display items with a minimum factor loading of .45. An oblique rotation (i.e., Promax) produces both a factor structure and a factor pattern matrix. The factor structure matrix represents the correlations between the variables and the factors; it is often called the factor loading matrix. The factor pattern matrix represents the linear combination of the variables. Costello and Osborne (2005) suggest that when examining SPSS output, the rotated factor matrix should be interpreted after an orthogonal rotation. However when using an oblique rotation, the pattern matrix should be examined for factor/item loadings.

The EFA was set to extract three factors with minimum factor loading set to .45. The following eigenvalues and variance were found: Factor 1, EV = 31.47, %variance = 29.14, Factor 2, EV = 7.46, %variance = 6.91, Factor 3, EV = 4.33, %variance = 4.01; cumulative variance = 40.05%). The factor correlation matrix should be examined to determine the correlations between factors and whether an oblique rotation was appropriate (Costello & Osborne, 2005). The factor communalities are displayed in Table 20. Thus, the relationship between factors supports the use of an oblique rotation. The EFA was also conducted using the expectation maximization covariance matrix as input to confirm the similarity of results. This procedure produced the same results, indicating that the initial procedure was appropriate. The item loadings on each factor according to the pattern matrix are displayed in Table 21. Examination of the item factor loadings suggested that items required further trimming (i.e., too many items would have been retained), therefore a more stringent criterion than .45 was used. Items with a minimum factor loading of .55 were retained.

By examining the pattern matrix, items that load on Factors 1, 2 and 3 were identified. The properties of these factors were examined. A cut-off criteria of .70 is a widely accepted cut-off for internal consistency, however for scales containing less than 10 items, an internal consistency of Cronbach's alpha .60 or higher is acceptable (Lowenthal, 1996). Factor 1 contained 19 items and had a Cronbach's alpha of .94. Factor 2 contained 14 items and Cronbach's alpha was equal to .88, while Factor 3 contained 14 items and Cronbach's alpha was equal to .93. Properties for each factor, including item-total correlations are displayed in Tables 22, 23, and 24.

The item-total correlations were then compared to correlations with a measure of social-desirability (i.e., the total score of the Balanced Inventory of Desirable Responding), as recommended by Jackson (1971). All items were checked for the strength of correlation to the BIDR. The highest correlation of an item to the BIDR was found for PDCQ12, $r = .19$ (i.e., item PDCQ12), which was still lower than that item's item-total correlation to the entire scale $r = .69$. Thus all items were retained based on this criterion.

Finally, items with problematic wording were removed. This included items with a readability level over grade 10, items that contained reference to substances other than alcohol (e.g., CAPS-R item 8 "Illegal activities associated with drug use"), and items that were double-barrelled, as this leads to confusion for the respondent and thus makes the answer difficult to interpret (Streiner & Norman, 2008). Only two of the remaining items had a reading level over grade 9 were identified and removed (i.e., PDCQ 9: Flesch-Kincaid readability level = 12.8 and YAACQ 31: Flesch-Kincaid readability level = 12.0).

The EFA was then repeated, using principal axis factoring with an oblique rotation (i.e., Promax). Thus, the results for the EFA after item deletion were: Factor 1, EV = 13.36,

%variance = 30.36, Factor 2, EV = 5.23, %variance = 11.89, Factor 3, EV = 2.99, %variance = 6.80; cumulative variance = 49.04%). The EFA item loadings are displayed in Table 25 and the factor correlation matrix demonstrates inter-relationship between factors, which supported the use of an oblique rotation (see Table 26). Again, items that had loadings of at least .55 were retained (Comrey & Lee, 1992). After item selection, Factor 1 contained 14 items, Factor 2 had 11 items, and Factor 3 contained 9 items. The properties for each of the three factors were examined. Cronbach's alpha for Factor 1 was found to be .92, Factor 2 was .93, and Factor 3 was .83. Scale item-total correlations and descriptive statistics for items on each underlying factor are displayed in Tables 27, 28, and 29. All 34 remaining items will be analyzed in Part Two as part of the new CAM scale (see Table 30).

In the final visual analysis of items retained for the CFA, it was noted that in several cases, items of a very similar nature remained on the scale after all empirical item selection (e.g., PDCQ12: "On a particularly stressful day, I noticed a release of tension from my muscles and nerves" and CAM 55: "I noticed a release of tension on a stressful day"). Other items were similar (i.e., PDCQ5: "In a situation in which I would usually have stayed quiet, I found it easy to make conversation" and CAM 21: "I found it easy to make conversation in a situation where I would usually have stayed quiet"), as well as YAACQ 18 and DrInc 16, and YAACQ 12 and DrInC 12, and YAACQ 33 and DrInC 21, as well as three items that canvassed feeling bad about oneself, YAACQ 3, CAPS-R 3, and DrInC 2. These are cases where the original item was re-worded for clarity in the initial revision of items or where there were redundant items from pre-existing scales (e.g., identical items on the YAACQ and the DrInC). The items would be selected based on the strength of their factor loadings in the confirmatory factor analysis conducted in Study Two. Additionally, the wording was changed for one item (i.e., CAPS-R1) to make it

consistent with the stem for the questionnaire (i.e., "Feeling sad, blue, or depressed" was changed to "I felt sad, blue, or depressed").

Results: Study Two

Data Cleaning

Descriptive statistics for the final sample were examined. Participants reported biological sex: 41 males and 147 females participated in the study, one participant did not respond to the item. None of the participants identified as "intersex". Gender was also reported (n = 42 men; n = 147 women). None of the participants identified as "other". The mean age of participants was 20.80, the mode was 18 and the median was 19, while the age range of participants was 17-62 years. Participants identified their ethnicity: n = 373 (89.88%) "White/Caucasian"; n = 11 (2.65%) "Aboriginal"; n = 7 (1.69%) "Asian"; n = 7 (1.69%) "Black"; n = 16 (3.86%) "Multiracial"; n = 1 (.00%) "Other".

Scale Properties

Internal consistency of the scale was high: Cronbach's alpha was .95. Each sub-scale was evaluated. Item-total correlations are displayed in Table 31. Based on a criterion of .40 (Gliem & Gliem, 2003), one item was removed. Cronbach's alphas of the sub-scales were as follows: Factor 1: .93, Factor 2: .95, Factor 3: .88, exceeding the acceptable cut-off criteria of .70 (Lowenthal, 1996).

A confirmatory factor analysis was conducted using Mplus 7.3 to determine if the CAM had the predicted factor structure in the new sample. The CAM items are categorical, and were on a Likert-type scale. By default, Mplus uses the maximum likelihood method of estimation for continuous variables. In order to enhance validity, data were analyzed as categorical by employing another estimator, as recommended by Garcia-Barrera, Kamphaus and Bandalos

(2011). The weighted least squares with mean and variance adjusted (WLSMV) "serves as a correction that is less computationally demanding than other options, such as weighted least squares (WLS), and produces estimates that are unbiased, consistent, and efficient" (p. 69, Garcia-Barrera et al., 2011). Furthermore, the WLSMV uses the diagonal of the weight matrix rather than the full weight matrix, which is used in other estimators (e.g., weighted least squares, WLS; Garcia-Barrera, et al., 2011). The WLSMV, like the WLS does use the full weight matrix to compute the standard errors and the chi-square value (Muthén & Muthén, 2006).

Goodness of fit was determined by examining the following fit statistics: $\chi 2$, the Root Mean Square Error of Approximation (RMSEA), the Comparative Fit Index (CFI), and the Tucker-Lewis Index (TLI). The chi-square test examines the difference between the expected and observed covariance values (Hoyle & Panter, 1995), where an insignificant *p* value indicates that the model has adequate fit (Garcia-Barrera, Karr, Duran, Direnfeld, & Pineda, 2015). For this model, the weighted least squares with mean and variance (WLSMV) adjusted $\chi 2$ was equal to 964.17 ($df = 524$; $p < .0001$). The chi-square is vulnerable to inflation and often significant with large sample sizes (Garcia-Barrera et al., 2011). Alternative fit indices are commonly used. Given the sample size ($N = 189$), the RMSEA was determined to be an appropriate indicator, as it is relatively insensitive to sample size (Albright & Park, 2009; Brown, 2006). Hu and Bentler (1999) recommend the following cut-off criterion to judge goodness of fit: RMSEA values close to .06, or lower. The RMSEA was found to be .067, where the 90% C.I. was .060-.073. The CFI was .95 and the TLI was .95, which indicated that the model had adequate fit, as Hu and Bentler (1999) recommend that CFI and TLI values close to .95, or higher indicate reasonably good fit. Standardized factor loadings are displayed in Table 32 and Figure 5 below, where values closer to 1.0 indicate a higher degree of shared variance between the item and the construct. The

standardized factor loadings of items were examined and one item had a factor loading less than .55, thus it was discarded (i.e., CAM 8; Comrey & Lee, 1992). The factor correlation matrix demonstrated relationship between factors, and whether there was sufficient independency: an inter-correlation higher than .85 signifies redundancy (see Table 33; Brown, 2006).

Item correlations with the underlying factor, and with social-desirability (i.e., the total score of the Balanced Inventory of Desirable Responding), are displayed in Table 34. None of the items were more strongly correlated with the BIDR than the scale.

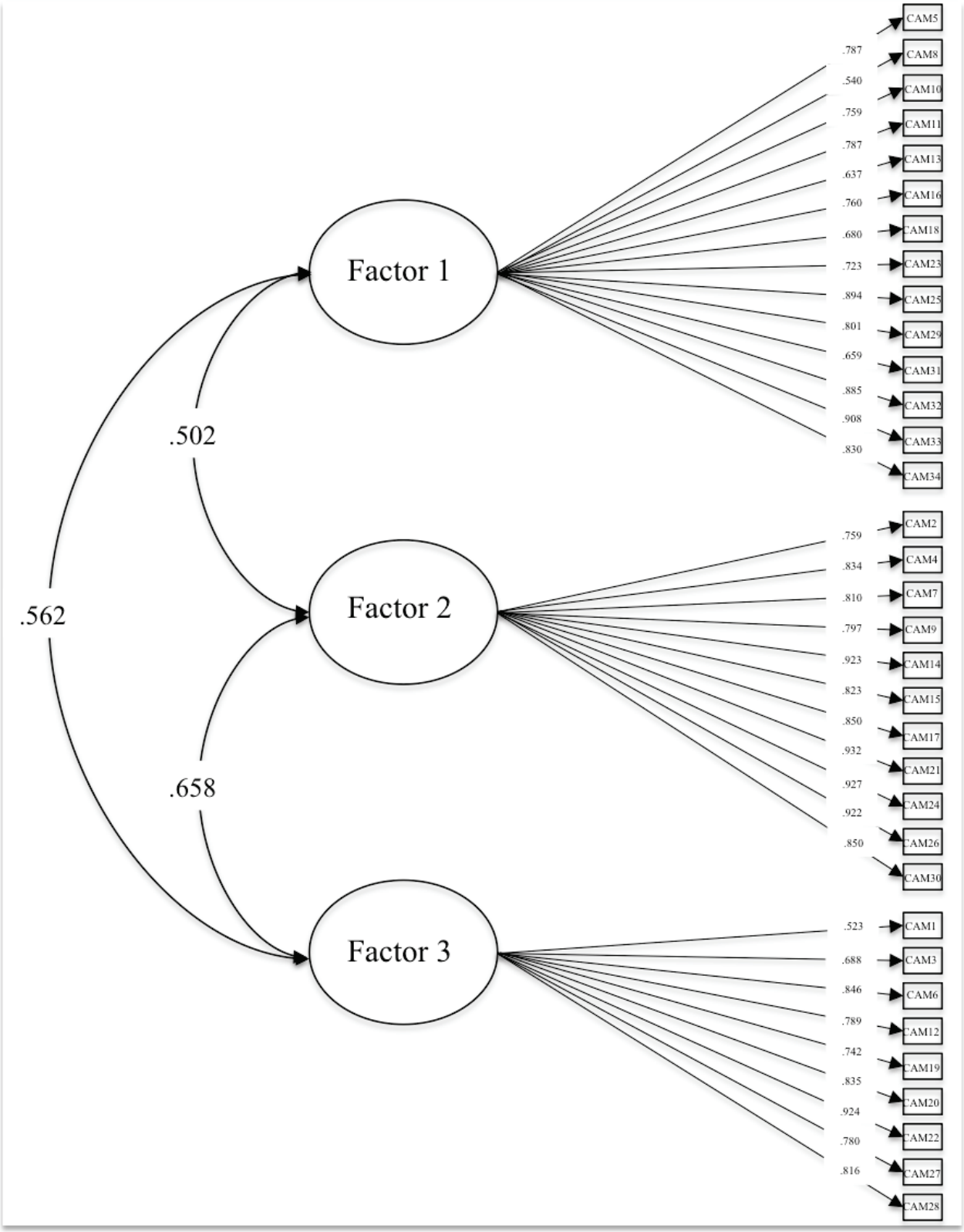


Figure 5. Structural diagram for the confirmatory factor analysis of the 34-item Consequences of Alcohol Measure

Sex Variance

The fit statistics of the CFA model were examined by testing for factorial invariance across sex (see Byrne, 2006). We attempted to run a CFA factor model for males and females, however there was evidence of differential responding for males compared to females for individual CAM items. Not all of the response options on the Likert-type scale were endorsed for each item in the male sample (i.e., on a few items 4 or 5 were not endorsed by any participants). In addition, some violations of skewness and kurtosis for individual CAM items were noted. A CFA model presumes that variables are continuous, although categorical items that are on a continuum are often analyzed in the same way. Therefore missing response options leads to an inability to compute thresholds, which are required for Mplus to perform the CFA. The sample included a limited number of males (i.e., 41). Due to these reasons, the CFA models, by sex, could not be computed. The scale could also not be tested for configural invariance (i.e., equivalent number of factors and factor-loadings patterns) across sex.

Item Redundancy

In the final analysis of items retained for the CFA, redundant items were selected based on their factor loadings. Retained and discarded items are shown in Table 32. CAM 2, 4, 5, 13, 15, 26, and 28 were removed. Cronbach's alpha for the entire final scale was .941. Cronbach's alpha for Factor 1 was .930, Factor 2 was .908 and Factor 3 was .862.

Construct Validity

In addition to the CFA model that provided evidence of construct validity, the measure was also compared to a frequently used screening tool for alcohol use problems. The total score of the CAM, not including valence questions, was correlated with scores on the AUDIT. The correlation was equal to .73, where $p < .001$. In order to examine the validity of the factors, each

one was correlated separately with the total score on the AUDIT (Factor 1, $r = .59$, $p < .001$; Factor 2, $r = .60$, $p < .001$; Factor 1, $r = .67$, $p < .001$).

Concurrent Validity

A hierarchical multiple regression was performed to examine predictors of alcohol consequences. Scores on the CAM were entered into a hierarchical multiple regression as a dependent variable to determine if indices of alcohol consumption predict alcohol consequences (see Table 35). To control for known predictors of alcohol consequences, sex and age were entered in the first step, and amount, frequency and heavy episodic drinking were entered in the second step, in the prediction of alcohol consequences (i.e., as measured by the CAM). The items that canvassed the frequency of alcohol consumption were "During the last 12 months, how often did you usually have any kind of drink containing alcohol?" and "How often (in the past month) have you had some kind of beverage containing alcohol?", while the amount of alcohol was determined by the following item: "How often (in the past month) have you had some kind of beverage containing alcohol?". Two items assessed the engagement in heavy episodic drinking: "During the past 7 days, how often did you have 4 or more drinks containing any kind of alcohol, within a 2 hour time period?" and "What is the greatest number of drinks you consumed in a 2 hour period in the last 7 days?". The correlation table is provided in Table 36.

After the first step, the model was not significant ($F(2,165) = .88$, $p = .419$) and neither sex nor age were significantly predictive of alcohol consequences. The second model was significant ($F(5, 160) = 22.03$, $p < .001$), where R^2 was .41. In particular, frequency one month (t (160) = -2.88, $p = .004$), drinks one occasion (t (160) = 2.56, $p = .011$), and frequency binge (t (160) = 2.68, $p = .008$) were significant predictors of alcohol consequences as measured by the CAM.

The regression analysis was then repeated for each of the individual factor scores of the CAM (i.e., see Tables 37 – 39). In each case, the model was not significant at the first step. For Factor 1, the second model was significant ($F(5, 160) = 23.80$, $p < .001$), where R^2 was .42. In particular, frequency 12 months (t (160) = -2.82, $p = .005$), frequency one month (t (160) = -2.92, $p = .004$), and frequency binge (t (160) = 2.19, $p = .030$) were significant predictors of Factor 1 consequences on the CAM. Similarly, the model for Factor 2 was significant at the second step ($F(5, 160) = 5.99$, $p < .001$; $R^2 = .15$) and the following factors were significant predictors: frequency one month (t (160) = -2.37, $p = .019$), drinks one occasion (t (160) = 2.65, $p = .009$). Both frequency binge (t (160) = 1.84, $p = .068$) and quantity two hours (t (160) = -1.92, $p = .056$) approached significance.

Convergent Validity

The relationship between scores on the CAM and the CESD-R was examined. Individuals who scored in the top third of the CAM were compared to individuals who scored in the bottom third, on a measure of depression (i.e., the CESD-R). The range of scores on the CAM was from 5-120, thus the cut points were determined to be scores in the range from 5 to 43 for the bottom third of scores ($n = 73$) and the top third ranged from 83 to 120 ($n = 5$). Although the number of participants in the upper range of scores was low compared to the other group, an independent t-test was significant ($t(76) = -3.46$, $p < .025$, where equal variances could not be assumed). The mean score on the CESD-R for the lower group was 9.78 ($SD = 10.34$), while the mean score for the upper third was 47.40 ($SD = 24.13$), which indicated that the upper group had significantly higher scored on the CESD-R.

Test-Retest Reliability

The follow-up sample consisted of 56 participants who logged on to complete the study for a second time. Infrequency totals were calculated; participants who had responded to two or more items were removed ($n = 4$). Using the identifier codes generated by the participant's response to items that canvassed birth month, favourite colour, and number of the house they grew up in, data was matched for time 1 and time 2. Several of the codes did not match a code generated from the first administration, therefore could not be analyzed ($n = 14$). The range of time difference in completion of the measure was from six to 26 days. All but one participant completed the measure within 11 days from the first administration. Given the length of time was outside of a reasonable time frame of approximately one-week follow up, this participant was removed from the test-retest analysis. The final sample for the test-retest analysis was comprised of 37 participants. The average time of completion for the follow-up administration was 7.46 days (i.e., range 6 to 11 days). The total on the CAM, without the valence items, for the initial administration ($M = 49.90$, $SD = 15.93$) was correlated with the follow-up score ($M = 52.35$, $SD = 13.83$) to determine the short-term stability of the measure ($r = .90$, $p < .001$). Stability of responses to the Valence items was also analyzed and demonstrated a similar correlation ($r = .88$, $p < .001$), where the mean for the initial administration was 48.20 ($SD = 19.23$) and the mean for the follow-up administration was 47.81 ($SD = 20.60$). Further, each factor was analyzed separately and found to have moderate to high correlations with time one and the follow-up scores. The correlation for Factor 1 was high ($r = .83$, $p < .001$), where the mean for the initial administration was 27.59 ($SD = 7.76$) and the mean for the follow-up administration was 25.68 ($SD = 7.83$). The correlation for Factor 2 was found to be slightly lower ($r = .70$, $p < .001$), where the mean for the initial administration was 8.30 ($SD = 3.32$) and the mean for the follow-

up administration was 25.68 (*SD* = 7.83). Finally, for Factor 3, the correlation between administration times was also high ($r = .81$, $p < .001$), where the mean for the initial administration was 11.73 (*SD* = 3.61) and the mean for the follow-up administration was 11.05 (*SD* = 3.46).

Valence Questions

The responses to the valence questions were analyzed by examining whether there were expected differences in valence for positive or negative consequences of the CAM, where higher scores represent more positive valence (i.e., scale from 1-5, where 1 represents feeling "Very Bad" and 5 represents feeling "Very Good" about the consequences. The mean valence for positive consequences (*M* = 34.47, *SD* = 12.89) was compared to the mean for negative consequences (*M* = 13.73, *SD* = 10.74) with a t-test ($t(188) = -20.51$, $p < .001$). The utility of including valence questions was examined by determining the relationship between the valence score to measures of depression; the correlation was moderate in strength and significant ($r = .33$, $p < .001$).

Factor Structure

The items for each factor of the CAM, after empirical item retention, are displayed in Table 40. Final examination of the items on each loading on each factor of the CAM provided evidence of conceptually distinct sub-scales. Factor 1 contained items related to positive consequences. Factor 2 contained items related to negative emotional consequences and Factor 3's items were negative behavioural consequences.

CHAPTER 4. DISCUSSION

Study One

Initial inspection of the data revealed that several participants (n = 40) failed to complete the study, despite having provided initial consent to participate. Given that this was an undergraduate sample, and individuals may have been aware that they would receive bonus credit regardless of whether they completed the entire study, this level of dropout is expected. Significantly more females participated than males[2]. This was also not unexpected, as the classes that were eligible for bonus credit were in the department of psychology. Psychology classes are known to have a high proportion of female students.

Following initial data inspection, it was noted that there was a low response rate to the valence questions of the CAM. Perhaps the repetitive nature of these questions was overly taxing or frustrating for participants as they were asked a large number of items that were similar in nature. In addition, the context of the study is important to consider. Participants were asked to report on a number of similar behaviours, through several questionnaires. This could have also led to frustration or a tendency to skip questions that were not deemed important, such as repetitive questions. Another possibility was that participants were less likely to complete the questions because they asked them to report personal feelings towards certain negative consequences. If an individual was attempting to avoid acceptance of negative consequences related to alcohol consumption, he or she may be less likely to admit to negative emotions associated with his or her behaviours. This type of responding raises interesting questions that could be addressed if the questionnaire was completed in a therapeutic context.

[2] When participants were asked to report their gender versus sex, the responses were slightly different; 92 participants identified as male, and 95 identified as men, while 321 participants reported being female, and 319 identified as women. Although the numbers were not large enough to analyze in this study, it is important to note for future research where there is an evaluation of gender or sex differences.

Refined item analysis was completed through several steps. It was likely the length of the initial scale that led to high internal consistency (Cronbach's alpha = .98). When the means of items were evaluated to determine how well the item captured a range of behaviour, it was found that overall there was a low endorsement of frequency in engagement in consequences (i.e., for most items, the mean was below the true mean of 3). Given that this was a non-clinical sample, a high level of behaviours associated with alcohol consumption was not expected. Using this type of item selection removed some items that assessed behaviours associated with alcohol consumption, but perhaps not to a high frequency. For example, we would not expect many participants to endorse suicide attempts at a high frequency. Unfortunately, this criterion led to the removal of such items. Similarly, items that examined criminal behaviours were eliminated. Low base rate behavioural items did not perform well in a psychometric sense. However, in future research and clinical applications, it may be useful to include such items. Sample items to be considered for inclusion are displayed in Table 41.

The exploratory factor analysis was completed by using parallel analysis, a method that has been deemed optimal for prevention of the under or over-extraction of factors (Lance et al., 2006; Velicer et al., 2000; Zwick & Velicer, 2000), however nine factors were extracted. This may have been related to the number of items included in the analysis. However, nine factors are not clinically useful. Further examination through the scree plot analysis yielded a 3-factor solution.

Items were retained based on a high factor-loading criterion (i.e., .55), in an attempt to reduce the scale to a number of items that would be feasible for research studies, and that were highly related to the overall construct. The remaining 34 items were deemed to perform well in

the initial analysis and were predicted to maintain the same factor structure when completed by a new sample of participants.

Study Two

The second portion of this study sought to provide additional support and confirm the validity of the scale that was established in Study One through exploratory statistical procedures. As well, the goal was to refine item selection through high standards of item retention. Factor analysis sought to provide evidence for the latent structure of the scale, as well as convergent and divergent validity. The scale was also subject to tests of convergent, criterion, and construct validity, as well as indices of scale stability through test-retest reliability. After screening of participants for engaging in truncated or infrequent responding, 189 individuals remained in the sample, with again more female (n = 147) than male (n = 41) participants (i.e., one participant did not report sex). The mean age was close to 20, which was not surprising for an undergraduate sample.

In the initial evaluation of items, one item was removed due to a low item-total scale correlation. After the removal of this item the item-total correlations ranged from .47 to .73, which demonstrated sufficient relationship of each item to the overall scale, but also that items canvassed a range of behaviours. The item-total correlations for the individual factors established in Study One remained sufficiently high, and exceeded the correlation to desirable responding. This was especially important in the development of this measure. The difficulty with measuring alcohol use problems is that individuals often deny difficulties or attempt to present well. This is part of the reasoning behind measuring consequences of alcohol use rather than asking directly about the amount of alcohol consumed and whether an individual acknowledges that alcohol use is problematic. The internal consistency was also high, providing evidence of reliability. In

addition, the test-retest reliability was also moderate to high for both items and valence questions.

According to several indices of fit (i.e., RMSEA, CFI and TLI), the CFA demonstrated that the factor structure obtained in Study One was in accordance with the model for the observed data in Study Two. The chi-square test was significant, indicating that the proposed model did not fit the observed data. However, the chi-square is known to be sensitive to sample size and the complexity of the problem. It has been shown to be vulnerable to inflation with large sample sizes (Garcia-Barrera et al., 2011). However, the sample size was not large in this study. In addition, using the chi-square test with small sample sizes can be problematic as there are too many type I errors (Kenny, 2015). In cases where there are many factors and degrees of freedom, and thus a high degree of complexity, and a small sample size, the chi-square test may be inappropriate (Kenny, 2015). Overall, the majority of the fit indices supported three factors that contribute to a latent observed variable, which is proposed to be alcohol consequences.

There was sufficient evidence of convergent validity, as the three distinct factors were interrelated (i.e., factors 1 & 2 = .50, factors 1 & 3 = .56 and factors 2 & 3 = .66) and found to load on the same overarching factor (e.g., alcohol use consequences). This also demonstrated that the correlations between factors did not exceed .85, which has been suggested as a cut-off for redundancy (Brown, 2006). This provided some evidence that the factors represent theoretically distinct constructs, and thus some support for discriminant validity.

Other indices were examined to investigate the construct validity of this measure. The AUDIT (Babor et al., 1992) has been used in many settings, clinical and research, and across age groups as a screening device for alcohol use problems (Devos-Conby & Lange, 2008). The AUDIT has shown specificity in identifying individuals who met criteria for alcohol use

disorders (Clements, 1998). There was a high correlation between the total scores, and each of the factors on the CAM and the AUDIT, which provided evidence of construct validity.

Another index of validity, concurrent validity, was tested through regression modeling, where known predictors of alcohol related problems were held constant to examine whether alcohol use could predict consequences measured by the CAM. Surprisingly, in the first step of the regression model, neither age nor sex were significant predictors of alcohol consequences. Regarding age, although there was a large range in the age of participants, the distribution was negatively skewed, such that most participants were on the younger end of the spectrum, and the mean age was approximately 20. It is possible that a skewed distribution led to a floor effect, and thus the variable of age was insignificant predictor.

As for sex, some recent evidence regarding the differences for males and females when positive and negative consequences are taken into consideration provides some explanation for this finding. Males have shown consistently more negative consequences related to alcohol consumption (Engs & Hanson, 1990; Hammer & Pape, 1997). Perhaps the inclusion of positive consequences negated the effect of sex. In a small sample that compared positive and negative consequences, men did report more consequences overall, but the associations between consequences and other variables (e.g., valence of consequences) was similar across gender (Park, 2004). In a follow-up study, men reported more negative consequence, but similar positive consequences to women (Park & Grant, 2005). Therefore, the initial examination of sex differences has yielded mixed findings when positive consequences are included. Another possibility for the findings was that the number of males in this sample was too small to detect sex differences.

As predicted, when all the variables were entered, the model was significant. This provides some information about alcohol consumption being predictive of alcohol consequences measured by the CAM. Furthermore, when each of the individual factors were entered, the models were all significant. This method of prediction is contrived by statistical methods, as there was no true time interval between alcohol consumption and measured consequences in this study, thus causal conclusions cannot be drawn. Nonetheless, the results provide additional support for the CAM.

Convergent validity was tested by determining if there was a difference in symptoms of depression for individuals who had high, compared to low, scores on the CAM. There was a striking difference in the mean CESD-R scores, even though the group in the top third of the scores on the CAM only comprised five participants the results were still significant. There was slight overlap in some of the items of the CAM with symptoms of depression, which could have led to an inflated association between the CAM and CESD-R. For example, some items canvass feelings of unhappiness, feeling bad about oneself, and feeling "sad, blue or depressed". In total, three items had overlap with symptoms of depression. However, this was not a majority of the 26 items in total on the scale, therefore the overlap was not deemed to be a major contribution to observed relationship.

The utility of the valence questions requires further study. Literature suggests that measuring alcohol consequences alone is not sufficient, and measuring a person's perception is necessary to understand whether a consequence is actually viewed as negative (Mallett et al., 2008). Despite the experience of negative consequences, individuals do not always evaluate them negatively, and in some cases the experience is even rated positively (Mallett et al., 2008, 2013). The goal of including these additional questions was to improve clinical utility of an alcohol

consequence measure. In terms of reducing problematic use, it is important to understand the influence and perceived severity of consequences, both positive and negative (Barnett et al., 2014; Devos-Conby & Lange, 2008). This study provides initial evidence that, on a broad level, the level of perceived aversiveness of outcomes is related to levels of depression.

Further examination of items, on an individual level, could be used to guide treatment. For example, knowing the perceived level of consequences may assist in the motivational interviewing aspect of treatment (Mallett et al., 2008), by guiding a more clear understanding of the stage of change. In motivational interviewing, a decisional balance worksheet can be used to weigh out the pros and cons for changing behaviour and not changing behaviour. While it is recognized that there are pros, or positive consequences, when an individual engages in alcohol use, the negative consequences may provide stronger evidence for the necessity of change. The CAM items could be used to map onto the decisional balance sheet in motivational interviewing. A recent meta-analysis showed beneficial effects alcohol use interventions for young adults who participated in treatments that relied on motivational interviewing techniques (e.g., Motivational Enhancement Therapy, Tanner-Smith & Lipsey, 2015). In addition, psychoeducation regarding the impact of consequences could be targeted to individuals who report low levels of concern, or positive emotions towards negative consequences associated with drinking.

Despite requiring further study into the utility of the valence questions, it was promising that they were related to the CESD-R. This demonstrated that participants who felt more negatively about the consequences associated with alcohol consumption, were also experiencing higher levels of depressive symptomology. However, this relationship was moderate and it is not recommended that the valence questions be used alone to gauge level of difficulties associated with alcohol consumption.

Contrary to expectations, none of the additional behaviours that were added in the initial development phase were retained. They were not empirically strong enough to load on the construct that was measured and did not perform well across psychometric validation techniques. It was predicted that behaviours that have been associated with alcohol consumption (e.g., antisocial, eating, sexual, self-harm and suicidal behaviours) would load more strongly on the construct that was measured. Others have noted the lack of behaviours known to be associated with drinking (Devos-Conby & Lange, 2008). Several items were eliminated due to low item variance, and thus low discrimination ability. This was likely due to the infrequency of some behaviours and the scale that was used to assess the frequency of behaviours. For example, we would not expect that suicidal behaviours occur frequently. Furthermore, the sample was not a clinical population, thus certain serious consequences associated with alcohol problems would be lower than in a sample of individuals diagnosed with alcohol use disorders. This result should not be understood to indicate that these behaviours are unrelated to alcohol use, but rather, that low base rate behaviours among non-clinical populations perform poorly using psychometric methods. There may be utility in developing both research- and clinical-forms of the CAM.

As predicted, factor analysis, while initially with an exploratory method and then a confirmatory method, revealed three distinct factors. This is novel information regarding distinct, but related, components of alcohol consequences. Instruments have been criticized for examining a unidimensional construct of alcohol problems rather than including the underlying factors of alcohol use problems (see Maddock et al., 2001; O'Hare, 1997). Although the factors of the CAM were determined through empirical methods (i.e., EFA and CFA), they were found to be conceptually distinct. It seems appropriate to name the three factors of the CAM based on their item content. The following sub-scales are proposed: Positive Consequences, Negative

Emotional Consequences, and Negative Behavioural Consequences. Although other scale development studies have found that alcohol consequences best fit one-factor solutions (e.g., RAPI, DrInC), the CAM demonstrated three factors. However, a study has yet to use factor analysis to examine positive and negative consequences on one measure. The extent to which these consequences are part of the same construct was confirmed through CFA; all three factors load onto a single, higher order factor, presumably alcohol consequences. The confirmation of three factors provides new possibilities for research related to specific types of consequences associated with personality variables. Understanding the types of personality variables associated with specific consequences could be useful in targeting clinical interventions.

Alcohol motives have been examined in prior research as a method for understanding the use of alcohol. The Drinking Motives Questionnaire - Revised (Cooper, 1994) and the Modified Drinking Motives Questionnaire – Revised (Modified DMQ-R; Blackwell & Conrod, 2003) includes some items that are similar to the items on the Positive Consequences subscale of this measure. For example, one item on the Modified DMQ-R states “To relax”, while the CAM item states “Drinking has helped me to relax”. It could be questioned whether these items are conceptually different. However, the distinction resides in the temporal relationship between the individual items and alcohol use. That is, while motives are a reason to engage in drinking, consequences are a result of drinking. Motives to engage in alcohol use are likely because of prior experiences of positive consequences, or at least, consequences deemed reinforcing in a positive or negative sense (e.g., Cooper, 1994). Therefore, it would be difficult to separate motives and consequences without a time-specific research paradigm. It is unlikely these concepts are completely distinct when individuals are asked about their retrospective behaviours.

However, the inclusion of negative consequences in the CAM provides a comprehensive range of behaviours associated with outcomes associated with alcohol use.

Conclusions

In the final evaluation of the scale, it is believed that initial test construction has yielded a valid and reliable scale. The final CAM and scoring worksheet are included in Appendix R. All initial evaluations scale performance followed our predictions. The scale demonstrated a high degree of internal consistency overall, and within each of the sub-scales. The CAM was showed strong test-retest reliability. The CAM was related to indices of alcohol consumption as well as an established measure for the discrimination of alcohol use disorders. The CAM was also related to symptoms of depression, which is a construct that is known to be associated with alcohol use problems.

The items of the CAM are not a significant departure from existing scales, rather an updated evaluation of the construct of alcohol consequences. This is common in scale development, as Streiner and Norman (2008) asserted: "Instruments rarely spring fully grown from the brows of their developers. Rather, they are usually based on what other people have deemed to be relevant, important, or discriminating" (pp. 17). Indeed, other examples exist (see, for example, Woicik, Stewart, Pihl, & Conrod, 2009). Empirical development was necessary to determine if the construct was missing additional variables. Furthermore, wording of items can become obsolete when language shifts and certain terms are no longer used in everyday language (Streiner & Norman, 2008). For example, item 26 on the YAACQ states, "As a result of drinking, I neglected to protect myself or my partner from a sexually transmitted disease (STD) or an unwanted pregnancy", and STD is no longer the correct terminology, rather it is termed a sexually transmitted infection. This study provided confirmation of the underlying latent

construct of alcohol consequences, with the selection of new and revised items from previously developed measures that are demonstrably still relevant.

In addition, the inclusion of positive consequences is a necessary development in the understanding of alcohol use disorders. For example, Park, Kim, Gellis, Zaso, and Maisto (2014) showed that positive consequences mediated the relationship of sensation seeking and binge drinking, while negative consequences had no effect. A cohesive scale that captures both these domains is required. In a recent study, researchers chose items from a variety of different scales to obtain items that canvassed both positive and negative consequences (Barnett et al., 2013). Thus, the creation of a valid and reliable measure is timely.

Dangerous drinking among students continues to be an area of attention for Canadian and American universities, leading to numerous health concerns and problematic outcomes (Barnett et al., 2014; Demers, Beauregard & Gliksman, 2013; Hingson et al., 2009; Perkins, 2002). There is a large body of literature that demonstrates that students continue to drink despite negative consequences (Mallett et al., 2006; Mallett et al., 2013; Park & Grant, 2005), and that this behaviour continues throughout university (Martinez, Sher & Wood, 2014). Calls for the inclusion of positive consequences (Barnett et al., 2014; Lee et al., 2010) led to the development of this comprehensive measure that encompasses both positive and negative consequences, with the addition of a scale for item valence (Barnett et al., 2014).

Items associated with suicide-related behaviours were not included on the CAM due to the inability to demonstrate acceptable psychometric properties of these items. However, there is likely still reason to include such items (see Table 41). Although these behaviours occurred at a relatively low base rate among undergraduate participants in studies 1 and 2 which made inclusion based on psychometric results unlikely, there are conceivably samples where base rates

of suicide and self-harm behaviours are high enough to warrant inclusion. For example, clinical samples or larger undergraduate samples may potentially show rates of suicide and self-harm behaviours that co-occur in the context of alcohol use that allow for psychometric evaluation of these items, which can contribute to a broader understanding of relationships between alcohol use and suicide and self-harm behaviours. For this reason, the researcher and/or clinician is invited to include these items should suicidal or self-harm behaviours as a consequence of alcohol use be of interest. The extended version of the CAM, which includes suicide and self-harm items, is included in Appendix S.

Limitations and Future Directions

Time frame of assessment is a consideration in the evaluation of a measure. When the length of time is too short, the responses may be affected by sporadic changes in alcohol use, such as attending a celebration event (Schry & White, 2013). On the other hand, if a measure assesses a longer time period, it is prone to biases, and disruptions in accurate memory for reporting (Schry & White, 2013). Instruments that ask respondents to identify problems in the last year make it more difficult to determine short-term changes in the severity of the problem. The CAM was developed with this time frame, as it was deemed important to assess a wide range of behaviours that may not have a high frequency in the short term. Other measures also address consequences in the previous year, such as the YAACQ and the RAPI. However, this makes time-interval research difficult when the interval is long, as the responses at time two may include the behaviours reported at the first time of data collection. It may be more helpful for research instruments to have a shorter time frame for response options. As well, alcohol consequence measures such as the RAPI (White & Labouvie, 1989) are often used over shorter time periods in research than intended or normed for (e.g., Conrod, Stewart, Comean, &

Maclean, 2006; C. J. Mushquash et al., 2014). In examining the final list of items on the CAM, it could be possible to modify the stem question depending on the research question. Further validation of the CAM with a shorter time frame than the evaluation of consequences would be helpful (e.g., "In the *last 12 months*, while I was drinking alcohol, or because of drinking alcohol…" could be changed to "In the *last 3 months*, while I was drinking alcohol, or because of drinking alcohol…"). As Devos-Conby and Lange (2008) asserted, it would be helpful for measures of alcohol consequences to evaluate the severity of specific consequences, so that an appropriate weight may be given to items. This could be accomplished through further validation of the CAM, perhaps with expert consultation to determine an objective severity of consequences. For example, suicidal behaviour might necessitate a higher weighing than the feeling of relaxation as a result of alcohol consumption.

Another modification of the CAM may be useful to explore in future research. As other substances are often consumed in conjunction (e.g., marijuana), there is potential for the CAM to be modified to assess all substance use consequences (e.g., Consequences of Substance Use Measure). While the CAM explicitly measures alcohol consequences, many of the consequences included on the measure could apply to substance use in general. Further empirical evaluation is required.

In addition to these limitations, it would be helpful for the CAM to be validated in a sample outside of undergraduate students, for further generalizability. Specifically, it requires further validation in an older sample. Item development was based on existing scales and research regarding alcohol consequences that exist for people in general. However, it is possible that the consequences determined through factor analysis, and the underlying construct, are unique to this populations (i.e., younger adults). In addition, a larger sample that includes more

males is required to test for sex invariance for the model determined in this study via factor analysis.

Another approach may have been to eliminate participants who scored high on the measure of social desirability. However, even with this strategy, it cannot be guaranteed that bias has not played a role in responding. For example, participants may be inclined to report more problems associated with alcohol consumption, to fit in with a cultural norm of drinking within undergraduate students (Borasi & Carey, 2001). Students tend to overestimate the drinking behaviour of their peers (Neighbors, Larimer & Lewis, 2004), which could influence reporting behaviour of consequences. However, the context of completion of this study may have limited conformity behaviours, as individuals completed the study anonymously and were not in a group setting (e.g., a laboratory).

Ultimately, the extent to which the CAM measures actual consequences of alcohol use cannot be determined without observation. This is one inherent difficulty in the development of a self-report measure. Further validation of the CAM with the use of multiple methods for examining behaviours would be beneficial. For example, collateral reports of participant's behaviours (e.g., by a friend or family member) could provide evidence of consequences. Of course, collateral reports are also prone to biases and error. Another option could be to obtain a clinician's assessment of alcohol use and potential diagnoses of alcohol use disorders, to provide additional support for the construct validity of the CAM. Overall, there are many future directions for this measure, but the initial evaluation of the CAM's performance as a reliable and valid tool is promising.

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Table 1.

Initial Items of the CAM

	Item
CAM1	I have been kicked out of a bar
CAM2	I found it easy to make conversation
CAM3	I have gone to school drunk
CAM4	I have failed to do things I was responsible for
CAM5	I felt fearless in a scary situation
CAM6	I have injured someone else
CAM7	I have damaged property
CAM8	I have hit someone to try to hurt them
CAM9	I have trespassed onto private property
CAM10	I have engaged in sexual behaviour without knowing if the person wanted to participate
CAM11	I have been arrested
CAM12	I did not use protection when having sex
CAM13	I have gone to work drunk
CAM14	I was able to make new friends
CAM15	I have cheated on a significant other
CAM16	I have sent someone a message that I regretted later
CAM17	I have damaged property that was not mine on purpose
CAM18	I called someone that I regretted later
CAM19	I had a physical fight with someone
CAM20	I have intentionally not paid for a service (e.g., taxi, bar tab, food)
CAM21	I found it easy to make conversation in a situation where I would usually have stayed quiet
CAM22	I have been refused service by a bartender
CAM23	I got to spend time with friends
CAM24	I have asked for an extension on an assignment
CAM25	I was in a sexual situation I regretted
CAM26	I have punched someone to try to hurt them
CAM27	I have damaged property that was not mine
CAM28	I talked to someone that I probably would not have
CAM29	I drank more alcohol than I planned on
CAM30	I have lost possessions (e.g., money, cell phone, clothing)
CAM31	I have pushed someone to try to hurt them
CAM32	I have eaten what others would consider a very large amount of food
CAM33	I have tried a drug I had not intended to
CAM34	I have skipped meals because I did not feel hungry
CAM35	I had a more intense sexual experience
CAM36	I forgot to use protection while having sex
CAM37	I have eaten a lot of food in a short time

CAM38	I have had alcohol poisoning
CAM39	I have lost control of how much I was eating
CAM40	I have done more drugs than I planned on
CAM41	I have damaged my own property on purpose
CAM42	I have had a verbal argument with someone
CAM43	I forgot to pay for a service (e.g., taxi, bar tab, food)
CAM44	I shared a feeling or emotion that I had kept secret before
CAM45	I found a creative solution to a problem that could have been hard to solve
CAM46	I have broken things of mine
CAM47	I have not been allowed to enter a bar, restaurant, or pub
CAM48	I didn't get as upset or emotional as I ordinarily would have
CAM49	I have not been allowed to enter a business that serves alcohol
CAM50	I engaged in sexual activity that was not planned
CAM51	I have asked to postpone an examination
CAM52	I felt more confident that other people found me good looking
CAM53	I touched someone in a sexual way without their permission
CAM54	I have accidentally damaged my own property
CAM55	I noticed a release of tension on a stressful day
CAM56	I have broken other people's things
CAM57	My sex life has suffered
CAM58	I have made a sexual advance on someone
CAM59	I have had a major bodily injury that required a visit to the hospital
CAM60	I stopped worrying about things I had been thinking about all day
CAM61	I have had a minor bodily injury that did not require a visit to the hospital
CAM62	I acted out a sex fantasy that I would usually be nervous to admit or attempt
CAM63	I have had thoughts of suicide
CAM64	I have threatened to commit suicide
CAM65	I have made a suicide attempt
CAM66	I have wished I was dead
CAM67	I had thoughts of suicide, even though I had not thought about suicide when I was sober
CAM68	I have done something to harm myself
CAM69	I have injured myself on purpose without the intention to die
CAM70	I have harmed myself more than I meant to
CAM71	I have injured myself without the intention to kill myself

Table 2.

Statistics for Scales

Scale	Range	Possible Range	Mean	Standard Deviation
CAM	71 - 171	71 - 355	101.30	18.90
YAACQ	48 - 106	48 - 240	54.71	14.40
PDCQ	14 - 56	14 - 70	26.40	8.11
CAPS	8 - 24	8 - 40	11.03	3.51
RAPI	23 - 69	23 - 115	28.31	5.88
DRC	50 - 112	50 - 250	64.90	11.63
AUDIT	0 - 24	0 - 32	6.84	4.43
BIDR	10 - 57	10 - 70	39.56	6.77
CESD	0 - 73	0 - 80	73.00	11.60

Note. CAM=Consequences of Alcohol Measure; YAACQ = Young Adult Alcohol Consequences Questionnaire; PDCQ = Positive Drinking Consequences Questionnaire; CAPS = College Alcohol Problems Scale; RAPI = Rutgers Alcohol Problems Inventory; DRC = Drinker Inventory of Consequences; AUDIT = Alcohol Use Disorder Identification Test; BIDR = Balanced Inventory of Desirable Responding; CESD = Center for Epidemiological Study of Depression-Revised

Table 3.

Skewness and Kurtosis Statistics for Scale Totals

Scale	Skewness	Standard Error	Kurtosis	Standard Error
CAM	.76	.12	.42	.27
YAACQ	1.06	.13	.55	.25
PDCQ	.69	.12	.22	.24
CAPS	1.45	.12	1.80	.24
RAPI	2.06	.12	7.20	.24
DRC	1.25	.13	1.61	.26
AUDIT	.98	.12	.93	.24
BIDR	-.84	.12	2.67	.24
CESD	1.91	.12	4.64	.24
TOTAL	.68	.15	-.40	.31

Note. CAM=Consequences of Alcohol Measure; YAACQ = Young Adult Alcohol Consequences Questionnaire; PDCQ = Positive Drinking Consequences Questionnaire; CAPS = College Alcohol Problems Scale; RAPI = Rutgers Alcohol Problems Inventory; DRC = Drinker Inventory of Consequences; AUDIT = Alcohol Use Disorder Identification Test; BIDR = Balanced Inventory of Desirable Responding; CESD = Center for Epidemiological Study of Depression-Revised

Table 4.

Item-Scale Statistics of CAM

	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Cronbach's Alpha if Item Deleted
CAM1	295.32	2815.24	.243	.977
CAM2	293.11	2760.93	.465	.977
CAM3	295.27	2813.82	.212	.977
CAM4	294.90	2785.50	.477	.977
CAM5	294.67	2775.19	.490	.977
CAM6	295.25	2810.89	.314	.977
CAM7	295.22	2808.40	.342	.977
CAM8	295.29	2811.87	.328	.977
CAM9	295.09	2800.69	.399	.977
CAM10	295.38	2822.13	.059	.977
CAM11	295.38	2819.47	.224	.977
CAM12	294.85	2787.08	.334	.977
CAM13	295.32	2817.72	.161	.977
CAM14	293.86	2770.05	.452	.977
CAM15	295.30	2813.19	.280	.977
CAM16	294.63	2772.74	.547	.977
CAM17	295.32	2815.74	.242	.977
CAM18	295.08	2799.37	.392	.977
CAM19	295.30	2812.86	.301	.977
CAM20	295.32	2811.20	.311	.977
CAM21	293.85	2765.77	.520	.977
CAM22	295.33	2816.69	.240	.977
CAM23	293.16	2761.18	.555	.977
CAM24	295.28	2817.66	.122	.977
CAM25	295.16	2800.96	.418	.977
CAM26	295.31	2812.89	.324	.977
CAM27	295.29	2810.39	.348	.977
CAM28	294.07	2770.21	.529	.977

CAM29	294.21	2757.36	.672	.977
CAM30	294.97	2789.08	.470	.977
CAM31	295.33	2813.68	.325	.977
CAM32	294.40	2769.46	.473	.977
CAM33	295.26	2808.06	.342	.977
CAM34	294.48	2772.00	.432	.977
CAM35	294.78	2785.14	.422	.977
CAM36	295.11	2794.53	.373	.977
CAM37	294.31	2766.15	.550	.977
CAM38	295.30	2814.08	.267	.977
CAM39	295.11	2795.79	.382	.977
CAM40	295.25	2805.48	.347	.977
CAM41	295.36	2817.50	.270	.977
CAM42	294.80	2777.86	.569	.977
CAM43	295.34	2812.13	.358	.977
CAM44	294.58	2784.86	.465	.977
CAM45	294.89	2796.97	.313	.977
CAM46	295.13	2801.04	.398	.977
CAM47	295.34	2816.86	.197	.977
CAM48	294.95	2797.23	.342	.977
CAM49	295.34	2818.43	.110	.977
CAM50	294.99	2788.00	.536	.977
CAM51	295.38	2822.16	.070	.977
CAM52	294.40	2774.64	.472	.977
CAM53	295.34	2819.78	.126	.977
CAM54	295.20	2804.42	.389	.977
CAM55	294.19	2775.66	.460	.977
CAM56	295.30	2813.77	.293	.977
CAM57	295.27	2810.89	.225	.977
CAM58	294.86	2788.15	.444	.977
CAM59	295.34	2816.66	.246	.977
CAM60	294.15	2771.55	.489	.977
CAM61	295.04	2796.21	.366	.977
CAM62	295.21	2812.14	.238	.977
CAM63	295.18	2805.57	.276	.977
CAM64	295.33	2816.22	.230	.977

CAM65	295.37	2821.04	.117	.977
CAM66	295.15	2804.10	.273	.977
CAM67	295.34	2817.06	.211	.977
CAM68	295.27	2814.55	.186	.977
CAM69	295.29	2814.71	.175	.977
CAM70	295.35	2820.23	.112	.977
CAM71	295.26	2813.39	.216	.977

Note: Bolded items retained due to meeting minimum .40 item-total correlation.

Table 5.

Item-Scale Statistics of YAACQ

	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Cronbach's Alpha if Item Deleted
YAACQ1	294.0781	2767.272	.639	.977
YAACQ2	295.0117	2786.310	.533	.977
YAACQ3	294.8281	2774.355	.583	.977
YAACQ4	295.2734	2814.043	.238	.977
YAACQ5	294.1563	2764.305	.645	.977
YAACQ6	294.9141	2780.800	.534	.977
YAACQ7	294.8047	2764.636	.682	.977
YAACQ8	294.4766	2780.541	.492	.977
YAACQ9	295.3516	2818.009	.193	.977
YAACQ10	294.3203	2754.344	.738	.977
YAACQ11	295.1797	2806.140	.338	.977
YAACQ12	295.1094	2792.553	.522	.977
YAACQ13	295.3359	2815.518	.259	.977
YAACQ14	295.1406	2785.776	.550	.977
YAACQ15	295.1328	2792.461	.477	.977
YAACQ16	295.3008	2812.886	.232	.977
YAACQ17	295.1328	2795.582	.507	.977
YAACQ18	295.0391	2789.520	.505	.977
YAACQ19	295.3164	2813.676	.279	.977
YAACQ20	294.8633	2780.001	.530	.977
YAACQ21	295.0586	2785.200	.542	.977
YAACQ22	295.3398	2814.680	.255	.977
YAACQ23	295.2656	2808.525	.315	.977
YAACQ24	295.2773	2810.876	.326	.977
YAACQ25	295.1250	2792.267	.463	.977
YAACQ26	295.3008	2811.764	.306	.977
YAACQ27	295.2695	2804.998	.447	.977
YAACQ28	294.8828	2777.053	.596	.977

YAACQ29	294.9258	2781.269	.635	.977
YAACQ30	295.0039	2777.816	.583	.977
YAACQ31	295.1641	2802.051	.428	.977
YAACQ32	295.0078	2781.310	.594	.977
YAACQ33	295.0742	2795.747	.488	.977
YAACQ34	294.8633	2781.671	.548	.977
YAACQ35	295.2656	2807.537	.380	.977
YAACQ36	294.8125	2772.200	.686	.977
YAACQ37	294.7617	2768.943	.636	.977
YAACQ38	295.2461	2802.782	.331	.977
YAACQ39	295.1328	2796.233	.487	.977
YAACQ40	295.2852	2808.181	.373	.977
YAACQ41	295.3008	2814.533	.204	.977
YAACQ42	295.3477	2814.894	.303	.977
YAACQ43	295.2813	2805.677	.409	.977
YAACQ44	295.3320	2814.811	.293	.977
YAACQ45	295.2031	2800.547	.407	.977
YAACQ46	294.9727	2783.948	.542	.977
YAACQ47	295.0938	2788.964	.571	.977
YAACQ48	295.0938	2785.136	.599	.977

Note: Bolded items retained due to meeting minimum .40 item-total correlation.

Table 6.

Item-Scale Statistics of PDCQ

	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Cronbach's Alpha if Item Deleted
PDCQ1	294.2813	2770.556	.569	.977
PDCQ2	293.7188	2767.599	.519	.977
PDCQ3	294.5313	2780.250	.500	.977
PDCQ4	294.2266	2768.356	.553	.977
PDCQ5	294.0742	2768.398	.584	.977
PDCQ6	294.6055	2768.601	.592	.977
PDCQ7	294.8711	2772.309	.626	.977
PDCQ8	294.9570	2797.618	.352	.977
PDCQ9	294.4219	2769.586	.555	.977
PDCQ10	294.7617	2782.723	.474	.977
PDCQ11	295.1836	2807.437	.292	.977
PDCQ12	294.3594	2776.631	.469	.977
PDCQ13	294.8125	2780.145	.510	.977
PDCQ14	294.3398	2767.339	.584	.977

Note: Bolded items retained due to meeting minimum .40 item-total correlation.

Table 7.

Item-Scale Statistics of CAPS-R

	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Cronbach's Alpha if Item Deleted
CAPS-R1	294.8672	2772.186	.596	.977
CAPS-R2	295.0234	2782.697	.552	.977
CAPS-R3	294.9063	2777.128	.561	.977
CAPS-R4	294.8477	2776.326	.573	.977
CAPS-R5	294.9883	2790.851	.508	.977
CAPS-R6	295.2578	2809.314	.338	.977
CAPS-R7	295.0781	2792.174	.444	.977
CAPS-R8	295.0625	2786.859	.468	.977

Note: Bolded items retained due to meeting minimum .40 item-total correlation.

Table 8.

Item-Scale Statistics of RAPI

	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Cronbach's Alpha if Item Deleted
RAPI1	295.0352	2787.783	.554	.977
RAPI2	295.1250	2796.698	.476	.977
RAPI3	295.2070	2797.922	.457	.977
RAPI4	295.1563	2809.693	.179	.977
RAPI5	295.1641	2798.632	.499	.977
RAPI6	295.0391	2789.191	.544	.977
RAPI7	295.3867	2822.450	.056	.977
RAPI8	295.0703	2783.972	.533	.977
RAPI9	295.1836	2803.970	.311	.977
RAPI10	295.3711	2819.191	.224	.977
RAPI11	294.7734	2796.294	.348	.977
RAPI12	295.2773	2806.899	.344	.977
RAPI13	295.1680	2794.532	.513	.977
RAPI14	295.2383	2809.304	.295	.977
RAPI15	295.2383	2805.398	.416	.977
RAPI16	295.2891	2814.285	.253	.977
RAPI17	295.1172	2796.614	.488	.977
RAPI18	295.3008	2812.815	.298	.977
RAPI19	295.1836	2801.531	.418	.977
RAPI20	295.2461	2807.261	.344	.977
RAPI21	294.8711	2784.434	.580	.977
RAPI22	295.3359	2816.404	.199	.977
RAPI23	295.3359	2817.149	.229	.977

Note: Bolded items retained due to meeting minimum .40 item-total correlation.

Table 9.

Item-Scale Statistics of DrInC

	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Cronbach's Alpha if Item Deleted
DRC1	294.2578	2768.184	.619	.977
DRC2	295.0352	2789.030	.496	.977
DRC3	295.1836	2796.292	.513	.977
DRC4	295.3320	2815.783	.258	.977
DRC5	293.6172	2776.943	.441	.977
DRC6	295.2188	2801.160	.486	.977
DRC7	295.3828	2821.931	.088	.977
DRC8	295.1289	2802.128	.372	.977
DRC9	295.3008	2814.541	.247	.977
DRC10	295.2344	2802.564	.421	.977
DRC11	294.7109	2788.795	.477	.977
DRC12	295.1328	2794.790	.499	.977
DRC13	294.8320	2781.097	.553	.977
DRC14	295.2031	2800.594	.507	.977
DRC15	294.1484	2777.131	.467	.977
DRC16	295.1680	2801.238	.410	.977
DRC17	294.6133	2776.105	.615	.977
DRC18	295.1914	2801.748	.471	.977
DRC19	294.9609	2778.155	.640	.977
DRC20	295.2031	2797.574	.563	.977
DRC21	295.1484	2802.017	.437	.977
DRC22	294.9492	2786.260	.591	.977
DRC23	295.3281	2814.010	.314	.977
DRC24	295.2891	2810.026	.376	.977
DRC25	295.0039	2797.133	.350	.977
DRC26	295.2383	2797.280	.453	.977
DRC27	295.3125	2812.890	.298	.977
DRC28	294.8867	2786.320	.404	.977

DRC29	295.2852	2807.852	.361	.977
DRC30	295.3672	2818.782	.232	.977
DRC31	295.3086	2812.324	.310	.977
DRC32	295.2461	2802.531	.358	.977
DRC33	295.3359	2815.957	.275	.977
DRC34	295.3242	2812.110	.371	.977
DRC35	294.3281	2762.464	.554	.977
DRC36	295.2578	2812.027	.217	.977
DRC37	295.3359	2815.306	.267	.977
DRC38	295.2617	2802.398	.477	.977
DRC39	295.2539	2805.602	.370	.977
DRC40	295.1250	2785.255	.602	.977
DRC41	295.3867	2821.681	.123	.977
DRC42	295.3633	2818.718	.200	.977
DRC43	295.3672	2818.100	.167	.977
DRC44	295.3867	2822.246	.074	.977
DRC45	293.8906	2770.310	.439	.977
DRC46	295.3633	2819.189	.178	.977
DRC47	295.3477	2815.545	.298	.977
DRC48	295.2383	2809.531	.345	.977
DRC49	295.3398	2815.880	.287	.977
DRC50	295.2656	2808.792	.381	.977

Note: Bolded items retained due to meeting minimum .40 item-total correlation.

Table 10.

Descriptive Statistics for Items on the CAM

	N	Minimum	Maximum	Mean	Std. Deviation	Variance
CAM1	415	1.00	5.00	1.1060	.37214	.138
CAM2	412	1.00	5.00	3.3422	1.25830	1.583
CAM3	411	1.00	4.00	1.1338	.40012	.160
CAM4	413	1.00	5.00	1.5109	.74260	.551
CAM5	411	1.00	5.00	1.7640	.93978	.883
CAM6	415	1.00	4.00	1.1639	.40186	.161
CAM7	414	1.00	5.00	1.1787	.44224	.196
CAM8	413	1.00	5.00	1.1114	.36496	.133
CAM9	413	1.00	4.00	1.3075	.55290	.306
CAM10	415	1.00	4.00	1.0482	.25555	.065
CAM11	415	1.00	2.00	1.0241	.15353	.024
CAM12	414	1.00	5.00	1.6159	1.04839	1.099
CAM13	413	1.00	4.00	1.0847	.31941	.102
CAM14	413	1.00	5.00	2.5956	1.11202	1.237
CAM15	412	1.00	4.00	1.1092	.35599	.127
CAM16	414	1.00	5.00	1.8188	.87943	.773
CAM17	412	1.00	3.00	1.0752	.28193	.079
CAM18	414	1.00	4.00	1.3454	.58967	.348
CAM19	414	1.00	4.00	1.0990	.35803	.128
CAM20	414	1.00	5.00	1.0628	.31264	.098
CAM21	413	1.00	5.00	2.5230	1.03463	1.070
CAM22	413	1.00	2.00	1.0726	.25986	.068
CAM23	412	1.00	5.00	3.2233	1.08007	1.167
CAM24	414	1.00	4.00	1.1184	.39119	.153
CAM25	413	1.00	4.00	1.2785	.51900	.269
CAM26	413	1.00	3.00	1.0823	.30049	.090
CAM27	412	1.00	3.00	1.1141	.33323	.111
CAM28	411	1.00	5.00	2.2895	.93775	.879
CAM29	415	1.00	5.00	2.2145	.89269	.797
CAM30	415	1.00	5.00	1.4265	.69419	.482
CAM31	415	1.00	3.00	1.0723	.28586	.082
CAM32	413	1.00	5.00	2.0073	1.09609	1.201

CAM33	412	1.00	4.00	1.1456	.40454	.164
CAM34	413	1.00	5.00	1.9201	1.07302	1.151
CAM35	414	1.00	5.00	1.6618	.85322	.728
CAM36	415	1.00	5.00	1.3084	.71647	.513
CAM37	413	1.00	5.00	2.0823	1.00870	1.017
CAM38	415	1.00	3.00	1.0892	.30177	.091
CAM39	414	1.00	5.00	1.2657	.61611	.380
CAM40	413	1.00	4.00	1.1646	.47969	.230
CAM41	414	1.00	3.00	1.0411	.21051	.044
CAM42	414	1.00	5.00	1.6039	.76711	.588
CAM43	412	1.00	4.00	1.0558	.25968	.067
CAM44	414	1.00	5.00	1.8019	.76825	.590
CAM45	413	1.00	5.00	1.4818	.74897	.561
CAM46	413	1.00	4.00	1.2518	.51154	.262
CAM47	412	1.00	4.00	1.0558	.26889	.072
CAM48	411	1.00	4.00	1.4282	.68899	.475
CAM49	415	1.00	5.00	1.0458	.31900	.102
CAM50	413	1.00	5.00	1.4310	.66333	.440
CAM51	412	1.00	2.00	1.0146	.11994	.014
CAM52	411	1.00	5.00	2.0000	.96018	.922
CAM53	413	1.00	3.00	1.0533	.24548	.060
CAM54	415	1.00	3.00	1.2000	.45151	.204
CAM55	414	1.00	5.00	2.2512	.97160	.944
CAM56	413	1.00	2.00	1.1017	.30261	.092
CAM57	414	1.00	5.00	1.0990	.42025	.177
CAM58	414	1.00	5.00	1.5193	.76760	.589
CAM59	413	1.00	3.00	1.0702	.28286	.080
CAM60	413	1.00	5.00	2.2494	.96707	.935
CAM61	412	1.00	4.00	1.3495	.64629	.418
CAM62	415	1.00	4.00	1.1928	.46256	.214
CAM63	415	1.00	5.00	1.2024	.55386	.307
CAM64	412	1.00	3.00	1.0510	.24129	.058
CAM65	415	1.00	3.00	1.0289	.18160	.033
CAM66	415	1.00	5.00	1.2217	.60514	.366
CAM67	415	1.00	4.00	1.0675	.30341	.092
CAM68	415	1.00	4.00	1.1157	.40661	.165
CAM69	414	1.00	5.00	1.0966	.40017	.160
CAM70	414	1.00	3.00	1.0338	.19389	.038
CAM71	413	1.00	4.00	1.1162	.38924	.152

Table 11.

Descriptive Statistics for Items on the YAACQ

	N	Minimum	Maximum	Mean	Std. Deviation	Variance
YAACQ1	415	1.00	5.00	2.301	.81849	.670
YAACQ2	414	1.00	4.00	1.372	.64293	.413
YAACQ3	410	1.00	5.00	1.575	.78207	.612
YAACQ4	414	1.00	3.00	1.1353	.36302	.132
YAACQ5	415	1.00	5.00	2.2193	.87511	.766
YAACQ6	415	1.00	4.00	1.4337	.70869	.502
YAACQ7	414	1.00	5.00	1.6159	.80244	.644
YAACQ8	415	1.00	5.00	1.9108	.78590	.618
YAACQ9	413	1.00	3.00	1.0508	.26038	.068
YAACQ10	415	1.00	5.00	2.1012	.89786	.806
YAACQ11	414	1.00	4.00	1.2343	.50247	.252
YAACQ12	414	1.00	5.00	1.2826	.59035	.349
YAACQ13	414	1.00	3.00	1.0700	.27383	.075
YAACQ14	414	1.00	4.00	1.2633	.60326	.364
YAACQ15	413	1.00	5.00	1.2373	.55026	.303
YAACQ16	413	1.00	4.00	1.1017	.39330	.155
YAACQ17	412	1.00	4.00	1.2549	.49876	.249
YAACQ18	413	1.00	4.00	1.3680	.63487	.403
YAACQ19	413	1.00	3.00	1.0847	.31172	.097
YAACQ20	412	1.00	5.00	1.5049	.74968	.562
YAACQ21	414	1.00	4.00	1.3237	.61583	.379
YAACQ22	414	1.00	4.00	1.0652	.30824	.095
YAACQ23	413	1.00	5.00	1.1404	.42908	.184
YAACQ24	412	1.00	3.00	1.1311	.36556	.134
YAACQ25	413	1.00	4.00	1.2567	.59283	.351
YAACQ26	414	1.00	4.00	1.0990	.34424	.118
YAACQ27	413	1.00	4.00	1.1283	.36933	.136
YAACQ28	414	1.00	4.00	1.5242	.70498	.497
YAACQ29	414	1.00	4.00	1.4686	.62065	.385
YAACQ30	412	1.00	5.00	1.3956	.72245	.522
YAACQ31	415	1.00	4.00	1.2337	.45664	.209
YAACQ32	414	1.00	4.00	1.4130	.67176	.451

YAACQ33	415	1.00	4.00	1.3373	.55336	.306
YAACQ34	415	1.00	4.00	1.5277	.71801	.516
YAACQ35	415	1.00	5.00	1.1422	.45208	.204
YAACQ36	415	1.00	4.00	1.5687	.67350	.454
YAACQ37	414	1.00	5.00	1.6304	.77562	.602
YAACQ38	415	1.00	5.00	1.1470	.50129	.251
YAACQ39	414	1.00	4.00	1.2657	.51790	.268
YAACQ40	415	1.00	4.00	1.1157	.36265	.132
YAACQ41	412	1.00	5.00	1.1092	.37593	.141
YAACQ42	413	1.00	3.00	1.0630	.28027	.079
YAACQ43	412	1.00	4.00	1.1019	.36820	.136
YAACQ44	412	1.00	3.00	1.0534	.23566	.056
YAACQ45	413	1.00	4.00	1.2034	.51886	.269
YAACQ46	412	1.00	4.00	1.3908	.65455	.428
YAACQ47	413	1.00	4.00	1.3051	.56077	.314
YAACQ48	412	1.00	4.00	1.3058	.58252	.339

Table 12.

Descriptive Statistics for Items on the PDCQ

	N	Minimum	Maximum	Mean	Std. Deviation	Variance
PDCQ1	414	1.00	5.00	2.1087	.84960	.722
PDCQ2	413	1.00	5.00	2.6271	.99827	.997
PDCQ3	413	1.00	5.00	1.8620	.79307	.629
PDCQ4	413	1.00	5.00	2.1937	.94059	.885
PDCQ5	412	1.00	5.00	2.3350	.90117	.812
PDCQ6	413	1.00	5.00	1.8450	.90854	.825
PDCQ7	412	1.00	5.00	1.5146	.75602	.572
PDCQ8	415	1.00	4.00	1.4651	.70752	.501
PDCQ9	415	1.00	5.00	1.9855	.92720	.860
PDCQ10	413	1.00	4.00	1.6586	.81381	.662
PDCQ11	414	1.00	5.00	1.2440	.56611	.320
PDCQ12	414	1.00	5.00	2.0507	.94387	.891
PDCQ13	413	1.00	5.00	1.5811	.80432	.647
PDCQ14	415	1.00	5.00	2.0530	.92318	.852

Table 13.

Descriptive Statistics for Items on the CAPS-R

	N	Minimum	Maximum	Mean	Std. Deviation	Variance
CAPS-R1	415	1.00	5.00	1.5012	.76099	.579
CAPS-R2	415	1.00	5.00	1.3494	.64893	.421
CAPS-R3	415	1.00	5.00	1.4699	.74434	.554
CAPS-R4	415	1.00	5.00	1.5494	.76886	.591
CAPS-R5	412	1.00	4.00	1.4029	.62221	.387
CAPS-R6	414	1.00	3.00	1.1425	.38303	.147
CAPS-R7	414	1.00	5.00	1.3309	.65588	.430
CAPS-R8	415	1.00	5.00	1.3012	.67271	.453

Table 14.

Descriptive Statistics for Items on the RAPI

	N	Minimum	Maximum	Mean	Std. Deviation	Variance
RAPI1	413	1.00	4.00	1.3898	.62752	.394
RAPI2	415	1.00	4.00	1.2819	.52478	.275
RAPI3	415	1.00	4.00	1.2048	.50502	.255
RAPI4	414	1.00	5.00	1.2560	.66903	.448
RAPI5	415	1.00	3.00	1.2410	.46600	.217
RAPI6	413	1.00	4.00	1.3729	.58413	.341
RAPI7	414	1.00	3.00	1.0290	.19468	.038
RAPI8	415	1.00	5.00	1.3470	.68812	.474
RAPI9	414	1.00	5.00	1.2343	.61118	.374
RAPI10	414	1.00	3.00	1.0604	.26722	.071
RAPI11	415	1.00	4.00	1.6145	.72284	.522
RAPI12	414	1.00	5.00	1.1473	.47711	.228
RAPI13	413	1.00	4.00	1.2349	.51251	.263
RAPI14	415	1.00	5.00	1.1880	.50442	.254
RAPI15	413	1.00	4.00	1.1864	.43690	.191
RAPI16	413	1.00	3.00	1.1065	.32423	.105
RAPI17	415	1.00	3.00	1.2843	.50229	.252
RAPI18	414	1.00	3.00	1.1208	.35470	.126
RAPI19	415	1.00	4.00	1.2410	.51053	.261
RAPI20	414	1.00	4.00	1.1691	.46203	.213
RAPI21	415	1.00	4.00	1.5229	.63233	.400
RAPI22	414	1.00	4.00	1.0821	.35893	.129
RAPI23	413	1.00	3.00	1.0799	.28880	.083

Table 15.

Descriptive Statistics for Items on the DrInC

	N	Minimum	Maximum	Mean	Std. Deviation	Variance
DRC1	414	1.00	5.00	2.1377	.82801	.686
DRC2	411	1.00	4.00	1.3747	.65201	.425
DRC3	413	1.00	4.00	1.2010	.47847	.229
DRC4	413	1.00	3.00	1.0896	.33300	.111
DRC5	411	1.00	5.00	2.7640	1.02661	1.054
DRC6	414	1.00	3.00	1.1787	.44224	.196
DRC7	413	1.00	3.00	1.0315	.20067	.040
DRC8	413	1.00	4.00	1.2954	.56164	.315
DRC9	414	1.00	3.00	1.1208	.36147	.131
DRC10	413	1.00	4.00	1.1646	.44831	.201
DRC11	414	1.00	4.00	1.6691	.65588	.430
DRC12	411	1.00	4.00	1.2749	.54534	.297
DRC13	413	1.00	4.00	1.5787	.72523	.526
DRC14	413	1.00	3.00	1.2082	.42407	.180
DRC15	414	1.00	5.00	2.2440	.95207	.906
DRC16	415	1.00	4.00	1.2675	.54131	.293
DRC17	411	1.00	4.00	1.7567	.69785	.487
DRC18	414	1.00	3.00	1.2222	.45514	.207
DRC19	415	1.00	5.00	1.4193	.65395	.428
DRC20	415	1.00	4.00	1.2072	.47186	.223
DRC21	415	1.00	3.00	1.2578	.46990	.221
DRC22	413	1.00	4.00	1.4262	.57242	.328
DRC23	414	1.00	3.00	1.0845	.30349	.092
DRC24	414	1.00	3.00	1.1377	.39104	.153
DRC25	415	1.00	5.00	1.4096	.72625	.527
DRC26	414	1.00	5.00	1.1643	.49411	.244
DRC27	413	1.00	4.00	1.0920	.34311	.118
DRC28	413	1.00	5.00	1.5496	.89799	.806
DRC29	411	1.00	4.00	1.1290	.41368	.171
DRC30	413	1.00	2.00	1.0339	.18119	.033
DRC31	413	1.00	4.00	1.0799	.29709	.088
DRC32	413	1.00	5.00	1.1235	.45342	.206
DRC33	412	1.00	3.00	1.0607	.24900	.062

DRC34	412	1.00	3.00	1.0728	.27823	.077
DRC35	413	1.00	5.00	2.0291	1.02830	1.057
DRC36	411	1.00	5.00	1.1411	.45214	.204
DRC37	412	1.00	3.00	1.0850	.33464	.112
DRC38	414	1.00	4.00	1.1401	.41717	.174
DRC39	415	1.00	4.00	1.1181	.39689	.158
DRC40	415	1.00	4.00	1.2771	.57971	.336
DRC41	415	1.00	3.00	1.0217	.17587	.031
DRC42	415	1.00	3.00	1.0361	.19938	.040
DRC43	415	1.00	5.00	1.0241	.22926	.053
DRC44	414	1.00	2.00	1.0169	.12908	.017
DRC45	415	1.00	5.00	2.4386	1.16737	1.363
DRC46	409	1.00	3.00	1.0269	.17646	.031
DRC47	415	1.00	3.00	1.0506	.23019	.053
DRC48	414	1.00	3.00	1.1667	.38589	.149
DRC49	414	1.00	2.00	1.0531	.22458	.050
DRC50	415	1.00	3.00	1.1229	.35006	.123

Table 16.

Descriptive Statistics for Items on the AUDIT

	N	Minimum	Maximum	Mean	Std. Deviation	Variance
AUDIT1	415	.00	4.00	1.8530	.78333	.614
AUDIT2	415	.00	4.00	1.2554	1.11957	1.253
AUDIT3	415	.00	3.00	1.2000	.88792	.788
AUDIT4	414	.00	3.00	.4179	.68308	.467
AUDIT5	414	.00	3.00	.2923	.52914	.280
AUDIT6	413	.00	2.00	.0726	.28651	.082
AUDIT7	411	.00	3.00	.4745	.65979	.435
AUDIT8	412	.00	4.00	.5825	.68026	.463
AUDIT9	412	.00	4.00	.5000	1.15575	1.336
AUDIT10	413	.00	4.00	.2179	.83664	.700

Table 17.

Descriptive Statistics for Items on the CESD-R

	N	Minimum	Maximum	Mean	Std. Deviation	Variance
CESD-R1	413	.00	4.00	.5690	.83794	.702
CESD-R2	415	.00	4.00	.5325	.89996	.810
CESD-R3	415	.00	4.00	1.0145	1.05857	1.121
CESD-R4	415	.00	4.00	.6145	.99311	.986
CESD-R5	415	.00	4.00	1.0120	1.06429	1.133
CESD-R6	413	.00	4.00	.8087	.93721	.878
CESD-R7	414	.00	4.00	.6957	.90419	.818
CESD-R8	415	.00	4.00	.3614	.75786	.574
CESD-R9	415	.00	4.00	.4024	.76423	.584
CESD-R10	415	.00	4.00	.3807	.74511	.555
CESD-R11	413	.00	4.00	.6901	.89542	.802
CESD-R12	413	.00	4.00	.4964	.81736	.668
CESD-R13	413	.00	4.00	.6126	.99026	.981
CESD-R14	413	.00	4.00	.1574	.57194	.327
CESD-R15	412	.00	4.00	.1359	.54569	.298
CESD-R16	415	.00	4.00	.9494	1.15464	1.333
CESD-R17	412	.00	4.00	.5364	.96717	.935
CESD-R18	414	.00	4.00	.1039	.44703	.200
CESD-R19	415	.00	4.00	.8386	1.07247	1.150
CESD-R20	415	.00	4.00	.7253	.93855	.881

Table 18.

Descriptive Statistics for Items on the BIDR

	N	Minimum	Maximum	Mean	Std. Deviation	Variance
BIDR1	415	1.00	7.00	4.5783	1.36485	1.863
BIDR2	414	1.00	7.00	3.9638	1.52339	2.321
BIDR3	412	1.00	7.00	3.3592	1.50816	2.275
BIDR4	415	1.00	7.00	3.7639	1.53609	2.360
BIDR5	414	1.00	7.00	3.9783	1.34651	1.813
BIDR6	414	1.00	7.00	4.4203	1.45711	2.123
BIDR7	414	1.00	7.00	4.0918	1.47990	2.190
BIDR8	413	1.00	7.00	2.9927	1.80411	3.255
BIDR9	412	1.00	7.00	4.3762	1.59888	2.556
BIDR10	412	1.00	7.00	4.1650	1.70071	2.892

Table 19.

Parallel Analysis: Principle Components and Raw Data Permutation

Root	Raw Data	Percentage
1	31.093327	2.491357
2	7.274545	2.374713
3	4.321879	2.296431
4	3.486937	2.231013
5	2.928197	2.178954
6	2.576797	2.126297
7	2.312513	2.080282
8	2.182664	2.036357
9	2.069060	1.993992
10	1.799960	1.952604
11	1.707355	1.915928
12	1.600319	1.880128
13	1.526502	1.779455
14	1.489422	1.745783
15	1.419522	2.491357
16	1.320715	2.374713

Note. Significance level was set to .05. The number of random datasets generated was 1000.

Table 20.

Factor Correlation Matrix for First Exploratory Factor Analysis

Factor	1	2	3
1	1.00	.593	.418
2	.593	1.00	.586
3	.418	.586	1.00

Table 21.

Pattern Matrix for First Exploratory Factor Analysis

	Factor		
	1	2	3
CAM2	.513		
CAM4		.581	
CAM5			
CAM14	.544		
CAM16			
CAM21	.735		
CAM23	.600		
CAM25		.516	
CAM28	.637		
CAM29	.509		
CAM30		.552	
CAM32			
CAM34			
CAM35			
CAM37			
CAM42		.501	
CAM44			
CAM50		.487	
CAM52	.568		
CAM55	.715		
CAM58			
CAM60	.774		
YAACQ1	.459		
YAACQ2			
YAACQ3			.685
YAACQ5			
YAACQ6		.538	
YAACQ7		.620	
YAACQ8			
YAACQ10			
YAACQ12			.727
YAACQ14			.588
YAACQ15		.508	

YAACQ17		.481	
YAACQ18			.823
YAACQ20			.469
YAACQ21			.535
YAACQ25			
YAACQ27			
YAACQ28			
YAACQ29		.473	
YAACQ30			.504
YAACQ31		.585	
YAACQ32		.583	
YAACQ33		.570	
YAACQ34			
YAACQ36		.467	
YAACQ37			
YAACQ39			.509
YAACQ43			.500
YAACQ45			.730
YAACQ46			.604
YAACQ47		.632	
YAACQ48			.708
PDCQ1	.720		
PDCQ2	.652		
PDCQ3	.515		
PDCQ4	.722		
PDCQ5	.819		
PDCQ6	.591		
PDCQ7			
PDCQ9	.650		
PDCQ10	.463		
PDCQ12	.756		
PDCQ13	.611		
PDCQ14	.760		
CAPS-R1			.551
CAPS-R2			.542
CAPS-R3			.746
CAPS-R4			.479
CAPS-R5			
CAPS-R7			
CAPS-R8			

RAPI1			
RAPI2		.572	
RAPI3			
RAPI5		.462	
RAPI6		.472	
RAPI8			
RAPI13		.638	
RAPI15		.539	
RAPI17			
RAPI19			.473
RAPI21			
DRC1	.459		
DRC2			.743
DRC3		.610	
DRC5	.607		
DRC6			
DRC10		.612	
DRC11			
DRC12			.790
DRC13			.532
DRC14			
DRC15	.726		
DRC16			.749
DRC17			
DRC18			
DRC19		.544	
DRC20		.650	
DRC21		.576	
DRC22		.564	
DRC26			
DRC28			
DRC35	.584		
DRC38			.650
DRC40			
DRC45	.583		

Note: The extraction method used was Principal Axis Factoring with a Promax rotation. Bolded items were retained according to the .55 retention criterion.

Table 22.

Item Statistics Factor 1 – First Exploratory Factor Analysis

	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Cronbach's Alpha if Item Deleted
CAM21	40.273	141.478	.624	.934
CAM23	39.574	141.689	.587	.935
CAM28	40.514	143.709	.597	.934
CAM52	40.807	143.412	.594	.934
CAM55	40.552	141.712	.663	.933
CAM60	40.552	141.121	.694	.932
PDCQ1	40.692	143.609	.671	.933
PDCQ2	40.171	141.889	.635	.933
PDCQ4	40.608	141.309	.706	.932
PDCQ5	40.451	140.753	.765	.931
PDCQ6	40.955	142.908	.657	.933
PDCQ9	40.816	142.410	.665	.933
PDCQ12	40.751	142.087	.667	.933
PDCQ13	41.218	145.842	.592	.934
PDCQ14	40.748	140.689	.751	.931
DRC5	40.034	143.353	.552	.935
DRC15	40.561	142.000	.663	.933
DRC35	40.772	141.893	.615	.934
DRC45	40.363	141.622	.540	.936

Table 23.

Item Statistics Factor 2 – First Exploratory Factor Analysis

	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Cronbach's Alpha if Item Deleted
CAM4	41.590	78.066	.542	.929
CAM25	41.818	80.793	.500	.929
CAM30	41.672	78.905	.514	.930
CAM42	41.494	77.702	.550	.929
CAM50	41.667	78.982	.534	.929
YAACQ6	41.665	78.228	.558	.929
YAACQ7	41.485	75.527	.684	.927
YAACQ15	41.862	80.564	.493	.930
YAACQ17	41.843	80.315	.579	.929
YAACQ29	41.631	78.242	.647	.927
YAACQ31	39.867	80.944	.573	.929
YAACQ32	39.696	78.179	.630	.928
YAACQ33	39.766	79.850	.586	.928
YAACQ36	39.537	78.026	.631	.928
YAACQ47	41.790	78.937	.647	.927
RAPI2	41.817	80.264	.552	.929
RAPI5	41.858	80.977	.540	.929
RAPI6	41.723	79.431	.570	.929
RAPI13	41.861	80.217	.565	.929
RAPI15	41.912	81.558	.505	.930
DRC3	41.898	80.823	.544	.929
DRC10	41.932	81.800	.459	.930
DRC19	41.679	77.990	.633	.928
DRC20	41.892	80.466	.595	.928
DRC21	41.841	80.828	.554	.929
DRC22	41.670	78.778	.650	.927

Table 24.

Item Statistics Factor 3 – First Exploratory Factor Analysis

	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Cronbach's Alpha if Item Deleted
YAACQ3	17.181	33.422	.722	.925
YAACQ12	17.475	35.104	.731	.924
YAACQ14	17.495	36.000	.580	.929
YAACQ18	17.390	34.534	.756	.923
YAACQ45	17.555	36.360	.629	.927
YAACQ46	17.367	36.112	.510	.931
YAACQ48	17.453	35.199	.729	.924
CAPS-R1	17.256	33.980	.677	.926
CAPS-R2	17.408	35.431	.610	.928
CAPS-R3	17.287	33.253	.787	.922
DRC2	17.383	34.411	.750	.923
DRC12	17.486	35.438	.745	.924
DRC16	17.490	35.724	.703	.925
DRC38	17.617	37.313	.604	.929

Table 25.

Pattern Matrix for Second Exploratory Factor Analysis

	Factor		
	1	2	3
CAM4			.547
CAM21	.622		
CAM23	.484		
CAM28	.510		
CAM30			.527
CAM52			
CAM55	.758		
CAM60	.803		
YAACQ3		.723	
YAACQ7			.605
YAACQ12		.739	
YAACQ14		.475	
YAACQ18		.830	
YAACQ32			.541
YAACQ33			.547
YAACQ45		.709	
YAACQ46			
YAACQ47			.585
YAACQ48		.695	
PDCQ1	.619		
PDCQ2	.593		
PDCQ4	.634		
PDCQ5	.760		
PDCQ6	.507		
PDCQ12	.821		
PDCQ13	.578		
PDCQ14	.799		
CAPS-R1		.567	
CAPS-R3		.749	
RAPI2			.563
RAPI13			.619
DRC2		.787	
DRC3			.646

DRC5	.620		
DRC10			.543
DRC12		.812	
DRC15	.804		
DRC16		.801	
DRC20			.643
DRC21			.581
DRC22			.529
DRC35	.602		
DRC38		.595	
DRC45	.605		

Note: The extraction method used was Principal Axis Factoring with a Promax rotation. Bolded items were retained according to the .55 retention criterion.

Table 26.

Factor Correlation Matrix for Second Exploratory Factor Analysis

Factor	1	2	3
1	1.00	.32	.51
2	.32	1.00	.47
3	.51	.47	1.00

Table 27.

Item Statistics for Factor 1 – Second Exploratory Factor Analysis

	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Cronbach's Alpha if Item Deleted
CAM21	28.933	79.863	.560	.920
CAM55	29.212	78.568	.687	.915
CAM60	29.212	78.221	.713	.914
PDCQ1	29.353	81.214	.615	.918
PDCQ2	28.832	79.649	.600	.918
PDCQ4	29.269	79.356	.663	.916
PDCQ5	29.119	78.716	.736	.914
PDCQ12	29.411	78.657	.705	.915
PDCQ13	29.879	82.225	.581	.919
PDCQ14	29.408	78.074	.761	.913
DRC4	28.694	79.620	.582	.919
DRC15	29.221	78.229	.723	.914
DRC35	29.432	78.728	.634	.917
DRC45	29.023	78.087	.576	.920

Table 28.

Item Statistics for Factor 2 – Second Exploratory Factor Analysis

	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Cronbach's Alpha if Item Deleted
YAACQ3	13.179	21.407	.741	.920
YAACQ12	13.473	22.875	.737	.920
YAACQ18	13.388	22.405	.763	.918
YAACQ45	13.553	23.942	.625	.925
YAACQ48	13.451	23.065	.713	.921
CAPS-R1	13.254	22.175	.646	.925
CAPS-R3	13.285	21.473	.776	.918
DRC2	13.381	22.288	.759	.918
DRC12	13.484	23.100	.762	.919
DRC16	13.488	23.253	.735	.920
DRC38	13.615	24.753	.592	.926

Table 29.

Item Statistics for Factor 3 – Second Exploratory Factor Analysis

	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Cronbach's Alpha if Item Deleted
CAM4	12.440	8.862	.501	.825
YAACQ7	12.335	8.286	.583	.816
YAACQ33	10.616	9.577	.534	.817
YAACQ47	12.640	9.327	.577	.812
RAPI2	12.665	9.645	.523	.818
RAPI13	12.711	9.550	.565	.814
DRC3	12.749	9.693	.573	.815
DRC20	12.745	9.656	.596	.813
DRC21	12.654	9.800	.546	.817

Table 30.

Items of the CAM for Study Two

Item	
CAM1	I have failed to do things I was responsible for
CAM2	I have felt badly about myself because of my drinking.
CAM3	I have taken foolish risks when I have been drinking.
CAM4	I have been unhappy because of my drinking.
CAM5	In a situation in which I would usually have stayed quiet, I found it easy to make conversation.
CAM6	While drinking, I have said harsh or cruel things to someone.
CAM7	I often have thought about needing to cut down or stop drinking.
CAM8	I felt like I had enough energy to stay out all night partying or dancing.
CAM9	Drinking has made me feel depressed or sad.
CAM10	I approached a person that I probably wouldn't have spoken to otherwise.
CAM11	I told a funny story or joke and made others laugh.
CAM12	I have had a blackout after drinking heavily (i.e., could not remember hours at a time).
CAM13	On a particularly stressful day, I noticed a release of tension from my muscles and nerves.
CAM14	I have felt guilty about my drinking.
CAM15	Caused you to feel bad about yourself
CAM16	Things that I had been worrying about all day no longer seemed important.
CAM17	Feeling sad, blue, or depressed
CAM18	Something that would have ordinarily made me upset or emotional didn't really get me down.
CAM19	Got into physical fights with other people (friends, relatives, strangers)
CAM20	Missed a day (or part of a day) of school or work
CAM21	I have felt bad about myself because of my drinking.
CAM22	I have missed days of work or school because of my drinking.
CAM23	I have enjoyed the taste of beer, wine, or liquor.
CAM24	I have been unhappy because of my drinking.
CAM25	Drinking has helped me to relax.
CAM26	I have felt guilty or ashamed because of my drinking.
CAM27	I have gotten into trouble because of drinking
CAM28	While drinking, I have said harsh or cruel things to someone.
CAM29	When drinking, my social life has been more enjoyable.
CAM30	My drinking has gotten in the way of my growth as a person.
CAM31	I drank alcohol normally, without any problems.
CAM32	I noticed a release of tension on a stressful day
CAM33	I stopped worrying about things I had been thinking about all day
CAM34	I found it easy to make conversation in a situation where I would usually have stayed quiet

Table 31.

Study Two: Item-Scale Statistics

	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Cronbach's Alpha if Item Deleted
CAM1	64.19	359.862	.355	.950
CAM2	64.24	351.711	.589	.948
CAM3	63.91	353.044	.527	.949
CAM4	64.41	351.083	.643	.948
CAM5	63.23	346.415	.605	.948
CAM6	64.13	352.196	.582	.948
CAM7	64.19	344.974	.592	.948
CAM8	63.36	351.072	.472	.949
CAM9	64.38	353.124	.603	.948
CAM10	63.56	347.383	.587	.948
CAM11	62.85	345.953	.570	.948
CAM12	64.18	350.347	.622	.948
CAM13	63.88	350.388	.521	.949
CAM14	64.32	345.354	.697	.947
CAM15	64.31	351.861	.567	.948
CAM16	63.51	345.092	.614	.948
CAM17	64.25	350.518	.600	.948
CAM18	63.97	350.798	.565	.948
CAM19	64.63	357.241	.505	.949
CAM20	64.41	353.343	.571	.948
CAM21	64.38	349.088	.649	.948
CAM22	64.61	355.921	.582	.948
CAM23	62.84	346.908	.562	.948
CAM24	64.44	347.857	.703	.947
CAM25	63.22	340.896	.726	.947
CAM26	64.41	350.231	.653	.948
CAM27	64.35	352.892	.592	.948
CAM28	64.21	354.357	.505	.949

CAM29	63.27	346.329	.619	.948
CAM30	64.62	352.911	.606	.948
CAM31	63.15	349.858	.471	.949
CAM32	63.61	344.061	.608	.948
CAM33	63.58	342.127	.672	.947
CAM34	63.34	344.380	.631	.948

Note: CAM refers to all items from Study One that comprised the newly developed scale – Consequences of Alcohol Measure. Bolded items retained due to meeting minimum .40 item-total correlation.

Table 32.

Factor Loadings for Confirmatory Factor Analysis

	Standardized factor loading	*SE*	R^2
	Factor 1		
CAM5**	.787	.026	.619
CAM8*	.540	.046	.292
CAM10	.759	.032	.576
CAM11	.692	.041	.479
CAM13**	.637	.041	.406
CAM16	.760	.032	.578
CAM18	.680	.039	.462
CAM23	.723	.036	.523
CAM25	.894	.021	.799
CAM29	.801	.029	.641
CAM31	.659	.042	.434
CAM32	.885	.018	.783
CAM33	.908	.014	.824
CAM34	.830	.022	.689
	Factor 2		
CAM2**	.759	.036	.576
CAM4**	.834	.034	.696
CAM7	.810	.040	.656
CAM9	.797	.032	.635
CAM14	.923	.020	.851
CAM15**	.823	.033	.677
CAM17	.850	.027	.723
CAM21	.932	.022	.869
CAM24	.927	.022	.859
CAM26**	.922	.024	.850
CAM30	.850	.038	.723
	Factor 3		
CAM1	.523	.052	.274
CAM3	.688	.042	.473
CAM6	.846	.027	.716
CAM12	.789	.037	.623
CAM19	.742	.065	.551

CAM20	.835	.033	.697
CAM22	.924	.039	.854
CAM27	.780	.042	.608
CAM28**	.816	.035	.666

Note. *CAM 8 was removed due to not meeting the .55 retention criterion. **CAM 2, 4, 5, 13, 15, 26, and 28 were removed due to item redundancy.

Table 33.

Factor Correlation Matrix from Confirmatory Factor Analysis

Factor	1	2	3
1	1.00		
2	.502	1.00	
3	.562	.658	1.00

Table 34.

Item-Scale Statistics for Study Two

		Corrected Item-Total Correlation by Factor	Cronbach's Alpha if Item Deleted	BIDR Correlation
Factor 1				
	CAM5	.678	.924	.160
	CAM10	.696	.924	.251
	CAM11	.581	.928	.175
	CAM13	.603	.927	.153
	CAM16	.699	.924	.334
	CAM18	.532	.929	.323
	CAM23	.652	.925	.342
	CAM25	.809	.920	.370
	CAM29	.741	.923	.357
	CAM31	.605	.927	.356
	CAM32	.761	.922	.295
	CAM33	.802	.920	.306
	CAM34	.772	.921	.368
Factor 2				
	CAM2	.727	.941	.053
	CAM4	.731	.941	.137
	CAM7	.669	.946	.153
	CAM9	.688	.943	.130
	CAM14	.851	.936	.158
	CAM15	.774	.939	.139
	CAM17	.720	.941	.245
	CAM21	.859	.936	.300
	CAM24	.850	.936	.240
	CAM26	.844	.937	.319
	CAM30	.687	.943	.283

Factor 3				
	CAM1	.406	.885	.110
	CAM3	.579	.872	.123
	CAM6	.696	.861	.065
	CAM12	.687	.862	.202
	CAM19	.588	.871	.164
	CAM20	.697	.861	.190
	CAM22	.684	.864	.193
	CAM27	.684	.862	.333
	CAM28	.640	.866	.300

Table 35.

Regression Model Predicting Alcohol Consequences (N = 168)

Predictor	Model 1			Model 2		
	B	*SE B*	β	*B*	*SE B*	β
Sex	-3.611	2.783	-.101	.371	2.23	.010
Age	.021	.239	.007	-.079	.191	-.026
Frequency 12months				-2.066	.991	-.237
Frequency 1month				-3.510	1.217	-.339**
Drinks 1occasion				.983	.384	.187**
Frequency Binge				2.53	.944	.206**
Quantity Binge				-.795	.455	-.156
Change in R^2		.010			.403***	
F for change in R^2		.875			22.029	

Note. *$p < .05$ **$p < .01$ ***$p < .001$

Table 36.

Correlations for Hierarchical Regression Model

	CAM Total	Sex	Age	Frequency 12months	Frequency 1month	Drinks 1occasion	Frequency Binge	Quantity Binge
CAM Total	1.000							
Sex	-.102	1.000						
Age	.020	-.131	1.000					
Frequency 12months	-.582***	.138	-.114	1.000				
Frequency 1month	-.572***	.188**	-.132*	.827***	1.000			
Drinks 1occasion	.302***	-.035	-.039	-.332***	-.199**	1.000		
Frequency Binge	.375***	-.077	-.099	-.361***	-.397***	.202**	1.000	
Quantity Binge	.325***	-.019	-.021	-.440***	-.495***	.474***	.579***	1.000

Note. *$p < .05$ **$p < .01$ ***$p < .001$ "Frequency 12months" and "Frequency 1month" variables were reverse coded.

Table 37.

Regression Model Predicting Alcohol Consequences – Factor 1 (N = 168)

Predictor	Model 1			Model 2		
	B	*SE B*	β	*B*	*SE B*	β
Sex	-1.682	1.742	-.076	.807	1.371	.036
Age	-.040	.150	-.021	-.138	.118	-.072
Frequency 12months				-1.721	.661	-.317**
Frequency 1month				-2.186	.750	-.338**
Drinks 1occasion				.006	.236	.002
Frequency Binge				1.214	.582	.166*
Quantity Binge				-.275	.280	-.086
Change in R^2		.006			.442***	
F for change in R^2		.476			23.802	

Note. *$p < .05$ **$p < .01$ ***$p < .001$

Table 38.

Regression Model Predicting Alcohol Consequences – Factor 2 (N = 168)

Predictor	Model 1			Model 2		
	B	*SE B*	β	*B*	*SE B*	β
Sex	-.800	.766	-.081	-.055	.731	-.006
Age	.100	.066	.118	.091	.063	.107
Frequency 12months				.039	.326	.016
Frequency 1month				-.947	.400	-.330*
Drinks 1occasion				.333	.126	.229**
Frequency Binge				.570	.310	.167
Quantity Binge				-.287	.149	-.203
Change in R^2		.023			.154***	
F for change in R^2		1.932			5.998	

Note. *$p < .05$ **$p < .01$ ***$p < .001$

Table 39.

Regression Model Predicting Alcohol Consequences – Factor 3 (N = 168)

Predictor	Model 1			Model 2		
	B	*SE B*	β	*B*	*SE B*	β
Sex	-1.114	.779	-.111	-.457	.668	-.046
Age	-.059	.067	-.068	-.050	.059	-.058
Frequency 12months				-.325	.307	-.133
Frequency 1month				-.311	.376	-.107
Drinks 1occasion				.601	.119	.407***
Frequency Binge				.626	.292	.181*
Quantity Binge				-.190	.141	-.132
Change in R^2		.015			.273***	
F for change in R^2		1.265			12.260	

Note. *$p < .05$ **$p < .01$ ***$p < .001$

Table 40.

Final Items of the Consequences of Alcohol Measure

Item	Factor	
CAM10	1	I approached a person that I probably wouldn't have spoken to otherwise
CAM11	1	I told a funny story or joke and made others laugh
CAM16	1	Things that I had been worrying about all day no longer seemed important
CAM18	1	Something that would have ordinarily made me upset or emotional didn't really get me down
CAM23	1	I have enjoyed the taste of beer, wine, or liquor
CAM25	1	Drinking has helped me to relax
CAM29	1	When drinking, my social life has been more enjoyable
CAM31	1	I drank alcohol normally, without any problems
CAM32	1	I noticed a release of tension on a stressful day
CAM33	1	I stopped worrying about things I had been thinking about all day
CAM34	1	I found it easy to make conversation in a situation where I would usually have stayed quiet
CAM7	2	I often have thought about needing to cut down or stop drinking
CAM14	2	I have felt guilty about my drinking
CAM17	2	I felt sad, blue, or depressed
CAM21	2	I have felt bad about myself because of my drinking
CAM24	2	I have been unhappy because of my drinking
CAM30	2	My drinking has gotten in the way of my growth as a person
CAM1	3	I have failed to do things I was responsible for
CAM3	3	I have taken foolish risks when I have been drinking
CAM6	3	While drinking, I have said harsh or cruel things to someone
CAM12	3	I have had a blackout after drinking heavily (i.e., could not remember hours at a time)
CAM19	3	Got into physical fights with other people (friends, relatives, strangers)
CAM20	3	Missed a day (or part of a day) of school or work
CAM22	3	I have missed days of work or school because of my drinking
CAM27	3	I have gotten into trouble because of drinking

Table 41.

Sample Clinical Items to be Considered for Inclusion

Item	
	Suicide & Self-Harm Items
CAM 26	I have had thoughts of suicide
CAM 27	I have threatened to commit suicide
CAM 28	I have made a suicide attempt
CAM 29	I have wished I was dead
CAM 30	I had thoughts of suicide, even though I had not thought about suicide when I was sober
CAM 31	I have done something to harm myself
CAM 32	I have injured myself on purpose without the intention to die
	Antisocial Behaviour Items
CAM 33	I have injured someone else
CAM 34	I have damaged property
CAM 35	I have hit someone to try to hurt them
CAM 36	I have trespassed onto private property
CAM 37	I engaged in sexual activity that was not planned
CAM 38	I have made a sexual advance on someone

Figure 3.

Raw Data and Randomly Generated Eigenvalues

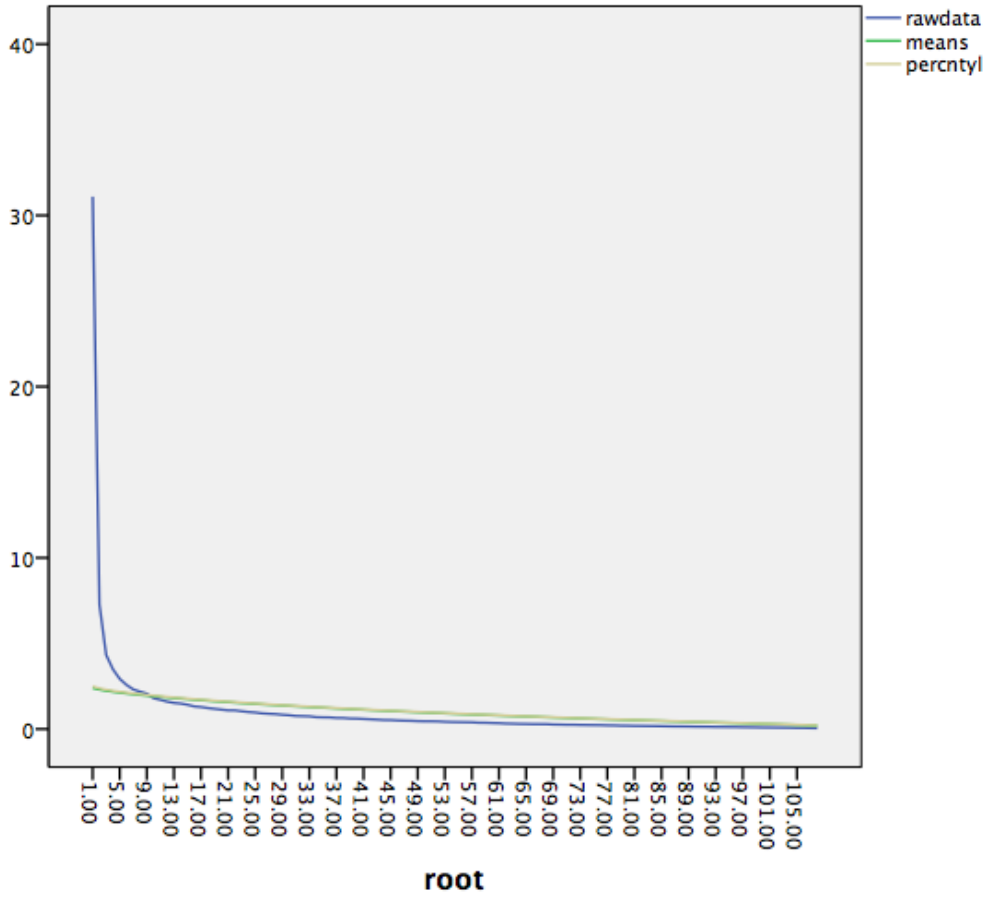
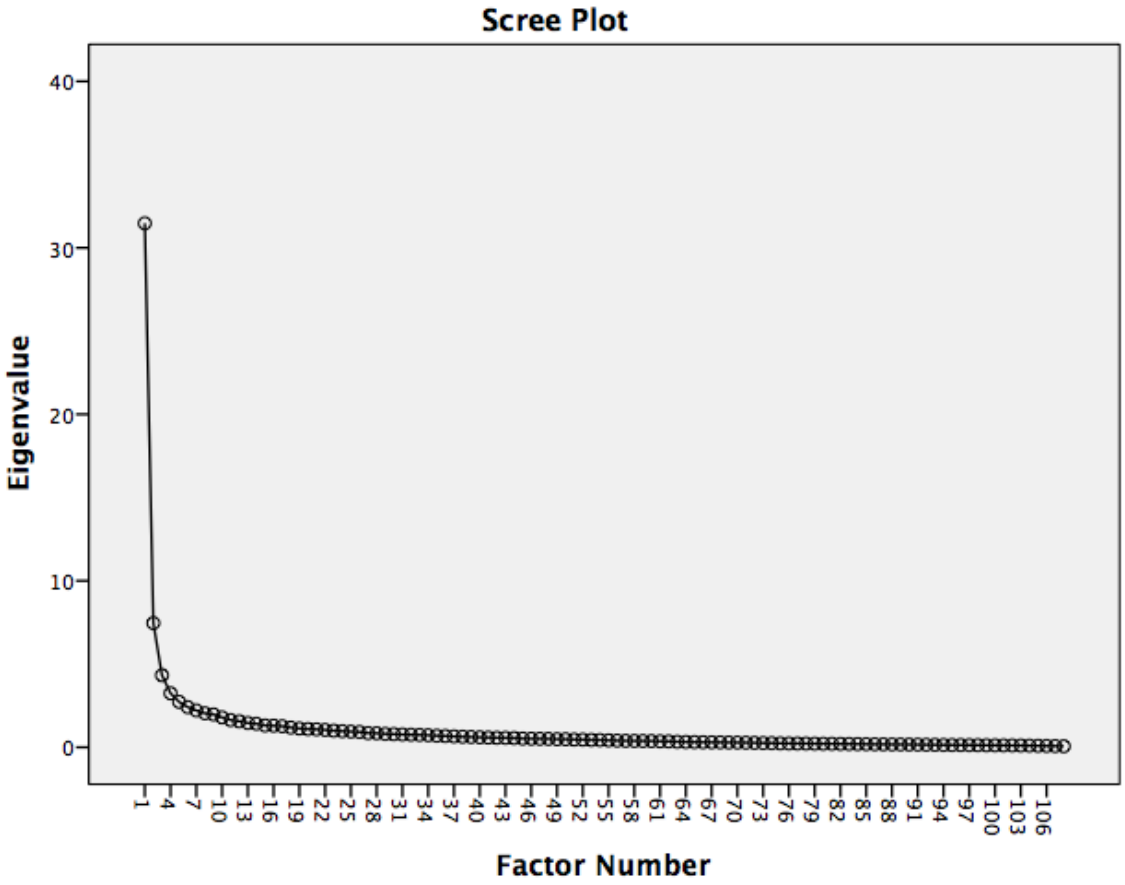


Figure 4.

Scree Plot for Exploratory Factor Analysis



Appendix A
Recruitment Poster

Lakehead UNIVERSITY

Substance Use Research Group

Do you drink alcohol?

There are negative *and* positive consequences of drinking alcohol. We'd like to find out more about these consequences! Researchers in Lakehead University's *Substance Use Research Group* are **looking for students** to complete an **online questionnaire** about the consequences of alcohol use. We want to know about your experiences!

If you have consumed any alcohol in the past 3 months, please go online to participate!

BONUS CREDIT available for psychology students,

Or Enter your name in a DRAW TO WIN $100

The SURG lab thanks you for considering!

www.surveymonkey.com/s/SURG	www.surveymonkey.com/s/SURG	www.surveymonkey.com/s/SURG	www.surveymonkey.com/s/SURG	www.surveymonkey.com/s/SURG	www.surveymonkey.com/s/SURG	www.surveymonkey.com/s/SURG	www.surveymonkey.com/s/SURG	www.surveymonkey.com/s/SURG	www.surveymonkey.com/s/SURG

Appendix B: Consent Form – Study One

Consent Form

Title of the Research Study: Positive and Negative Consequences of Drinking Alcohol

Principal Investigator: Dr. Christopher Mushquash, Lakehead University
Email: chris.mushquash@lakeheadu.ca
Phone: (807) 343-8239

Student Investigator: Sarah Sinclair, Lakehead University
Email: ssinclai@lakeheadu.ca

Introduction
We invite you to take part in a research study being conducted by Dr. Christopher Mushquash and Sarah Sinclair. Your participation in this study is voluntary and you may withdraw anytime prior to submission of the survey.

Purpose of this study
The main purpose of this study is to better understand the consequences and outcomes of alcohol use. There are some positive and negative consequences of alcohol use that have been missed in other research.

Study design
This study involves approximately 45 minutes of participation, which involves the completion of a battery of questionnaires online. Approximately 700 individuals will be recruited for this study.

Who can participate in this study?
You must speak and read fluently in English. You must be a university student and have access to the Internet. You must have consumed at least one alcoholic drink in the last 3 months to be able to participate. One standard alcoholic drink is defined as either: 1 bottle/can of beer, 1 glass of wine, or 1 shot of hard liquor (either straight or with a mixer).

Who will be conducting the research?
Dr. Christopher Mushquash and Sarah Sinclair will be conducting the research.

What YOU will be asked to do:
You will be asked to complete a series of questionnaires about your emotions and things that may have happened to you because of drinking. Examples of things that may have happened include feeling a relief from stress or missing school. It will take approximately 45 minutes to complete online via Survey Monkey. You may choose not to answer any question. All questions are completely anonymous, and there is no way to link your name to your answers. You are free to withdraw from the study at any time prior to the submission of the survey. Once the survey is submitted, your responses cannot be removed because they are anonymous and there is no way to link your name to your data. The researcher will not contact you about any of your answers because this is not possible; there is no way for the researcher to know how you answered the questions.

Possible risks and discomforts
There is a possibility that answering some of the questions asked in this study may cause you distress. Some questions ask you about possible suicidal thoughts or behaviours. Some questions ask about possible illegal behaviours. If you are distressed during or after your participation in this study, please feel

free to contact Dr. Mushquash, by phone at (807) 343-8239 or by email at chris.mushquash@lakeheadu.ca. He will meet with you and help to connect you with appropriate services to help deal with your distress. As a student at Lakehead University, you are also able access counselling services through the Student Health and Counselling Centre at Lakehead University. Call (807)-343-8361 to book an appointment. If you need immediate help for feelings of distress, please call the Crisis Response Service at 1-888-269-3100. This study is voluntary. You are free to discontinue participation at any time if you feel discomfort. PLEASE COPY OR PRINT THIS INFORMATION FOR YOUR RECORDS. (To print, click 'File' > 'Print')

Possible benefits

There are no direct benefits anticipated as a result of participating in this study. However, you will have an opportunity to learn about the results of this study at the completion of the project. If you are interested in learning more about the results of this study, please contact Dr. Mushquash. He will arrange for you to receive a written summary of the results of the study via email. No individual results will be provided in this summary. Results will only be presented in grouped format. This summary will describe the results of the study and potential implications of the findings in a non-technical format. This study will also provide indirect benefits by increasing our knowledge of the consequences of alcohol use.

Compensation/reimbursement

You will be offered one bonus credit for participating in this study. If you are not eligible to receive bonus credits from the Participant Pool in the Department of Psychology, your name will be placed in a draw to win $100. If you are eligible for bonus points but would rather be in a draw to win $100, you can choose this option.

Anonymity and Confidentiality

Anonymity: Your individual data will not be identified in any reports or publications. Data will only be presented in grouped format. Identifiable information (e.g., contact email) will not be linked to your survey responses in any way. Several steps have also been taken to protect your confidentiality (see below).

Confidentiality: All information obtained is strictly confidential. Several precautions will also taken to protect the confidentiality of data collected via the Internet. First, all data collected through the Internet will be encrypted when it is sent electronically. Second, any identifiable information collected will not be connected to your responses. Third, we will be utilizing a survey company that uses the highest levels of security regarding the collection, transmission, and storage of data collected though the Internet. This includes sending data in an encrypted format when data are transmitted electronically, a secure database, and password protection to access the data. Only the Principal Investigator will have access to this password. The survey company will not have access to any identifying information about you.

Consistent with the Lakehead University's policy on research integrity data, electronic versions of the data will be retained for a minimum of 5 years, up to an indefinite period of time, and will be kept in a password-protected computer in the locked laboratory of the Principal Investigator. Data from Survey Monkey will be kept electronically until the Principal Investigator has deleted the survey account. Deleted data may remain for a maximum of 12 months in accordance with Survey Monkey's policy. Electronic versions of the data will not include your name or contact information but will contain the following information about you: age, sex, weight, height, ethnicity (i.e., self-reported ethnicity and country of birth), length of time lived in Canada, occupation, nature of employment (e.g., full-time, part-time, etc.), years of formal education, year of study if you are a university student, total annual family income, and the number of individuals supported by this family income.

Questions

If you have any questions about this study or your participation, you may contact the Principal Investigator, Dr. Mushquash, by emailing chris.mushquash@lakeheadu.ca.

This research study has been reviewed and approved by the Lakehead University Research Ethics Board. If you have any questions related to the ethics of the research and would like to speak to someone other than the researchers, please contact Sue Wright at the Research Ethics Board at 807-

343-8283 or research@lakeheadu.ca.

I have read and understood the explanation of this study. I understand the potential risks and benefits. I have been given an opportunity to discuss this study and my questions have been answered to my satisfaction. I realize that my participation is voluntary and I am free to withdraw from this study at any time prior to submission of the survey.

- ○ I consent to take part in this study.
- ○ I do not consent to take part in this study.

Appendix C
Demographic Sheet

NOTE: IF YOU DO NOT KNOW THE EXACT ANSWER,
PLEASE PROVIDE YOUR BEST ESTIMATE.

1. Your age: _____ years

2. Your biological sex: male ___ female ___ intersex___

3. Your gender: man___ woman___ other___

4. Your ethnicity (e.g., Asian, Caucasian/White, First Nations, etc.): _____

5. Your **biological** mother's ethnicity: _____

6. Your **biological** father's ethnicity: _____

7. Your country of birth: _____

8. Your **biological** mother's country of birth: _____

9. Your **biological** father's country of birth: _____

10. How long have you lived in Canada? _____ years

11. Your relationship status:
single _____
dating _____
separated _____
married _____
divorced _____
cohabiting (i.e., living with your partner) _____
widowed _____
other (please specify) _____

12. Your number of years of formal education (i.e., from kindergarten to the present): _____

13. Your year of study in university (e.g., 1st): _____

14. Your major in university (e.g., Economics): _____
Note: "undecided" or "undeclared" may be listed as a major

15. Your occupation (e.g., teacher): _____
Note: "student" may be listed as an occupation

16. Check the option that best describes your employment situation:
I work full-time _____
I work part-time _____
I am unemployed _____
I am a homemaker _____
I am retired _____
other (please specify) _____

17. Check the option that best describes your education situation:
I am a part-time student _____
I am a full-time student _____
other (please specify) _____

18. Question 17 does *not* ask about your annual personal income. Instead, Question 17 asks about your annual family income. In other words, indicate how much money was earned last year in the household where you were raised. Check the option that best describes your annual family income in Canadian dollars (before taxes, deductions, etc.):
$0.00 - $19 999 _____
$20 000 - $39 999 _____
$40 000 - $59 999 _____
$60 000 - $79 999 _____
$80 000 - $99 999 _____
$100 000 - $119 999 _____
$120 000 - $139 999 _____
$140 000 - $159 999 _____
$160 000 - $179 999 _____
$180 000 - $199 999 _____
greater than $200 000 _____

19. How many people are supported by your total annual family income (listed in question 17)? _____

20. What is your current weight? Report either in pounds _____ or in kilograms _____

21. What is your current height? Report either in feet/inches _____ or in meters/centimeters _____

Appendix D
Alcohol Consumption Questions

One standard drink is defined as: one bottle/can of beer, one glass of wine, or one shot of hard liquor (either straight or with a mixer)

1) Have you consumed at least one drink of alcohol in the past 3 months?
YES NO
2) During the last 12 months, how often did you usually have any kind of drink containing alcohol? Choose only one.

Every day
5 to 6 times a week
3 to 4 times a week
twice a week
once a week
2 to 3 times a month
once a month
3 to 11 times in the past year
1 or 2 times in the past year

How often (in the past month) have you had some kind of beverage containing alcohol?

Every day
5 to 6 times a week
3 to 4 times a week
twice a week
once a week
2 to 3 times a month
once a month

In the past month, when you were drinking alcohol, how many drinks did you *usually* have on ONE occasion?

Heavy-Episodic Drinking

During the past 7 days, how often did you have 4 or more drinks containing any kind of alcohol, within a 2 hour time period?

- 0 times
- 1 time
- 2 times
- 3 times
- 4 times
- 5 times

- 6 times
- 7 times
- 8 times
- 9 times
- 10 or more times

What is the greatest number of drinks you consumed in a 2-hour period in the last 7 days?

Appendix E
Young Adult Alcohol Consequences Questionnaire
(Read, Kahler, Strong & Colder, 2006)

Below is a list of things that sometimes happen to people either during, or after they have been drinking alcohol. Next to each item below, please mark an "X" in either the YES or NO column to indicate whether that item describes something that has happened to you IN THE PAST 12 MONTHS.

In the past year...

		NO	YES
1.	While drinking, I have said or done embarrassing things.		
2.	The quality of my work or schoolwork has suffered because of my drinking.		
3.	The quality of my work or schoolwork has suffered because of my drinking.		
4.	I have driven a car when I knew I had too much to drink to drive safely.		
5.	I have had a hangover (headache, sick stomach) the morning after I had been drinking.		
6.	I have passed out from drinking.		
7.	I have taken foolish risks when I have been drinking.		
8.	I have felt very sick to my stomach or thrown up after drinking.		
9.	I have gotten into trouble at work or school because of drinking.		
10.	I often drank more than I originally had planned.		
11.	My drinking has created problems between myself and my boyfriend/girlfriend/spouse, parents, or other near relatives.		
12.	I have been unhappy because of my drinking.		
13.	I have gotten into physical fights because of drinking.		
14.	I have spent too much time drinking.		
15.	I have not gone to work or missed classes at school because of drinking, a hangover, or illness caused by drinking.		
16.	I have felt like I needed a drink after I'd gotten up (that is, before breakfast).		
17.	I have become very rude, obnoxious or insulting after drinking.		
18.	I have felt guilty about my drinking.		
19.	I have damaged property, or done something disruptive such as setting off a false fire alarm, or other things like that after I had been drinking.		
20.	Because of my drinking, I have not eaten properly.		
21.	I have been less physically active because of drinking.		
22.	I have had "the shakes" after stopping or cutting down on drinking (eg., hands shake so that coffee cup rattles in the saucer or have trouble lighting a cigarette).		
23.	My boyfriend/girlfriend/spouse/parents have complained to me about my drinking.		
24.	I have woken up in an unexpected place after heavy drinking.		

25. I have found that I needed larger amounts of alcohol to feel any effect, or that I could no longer get high or drunk on the amount that used to get me high or drunk.
26. As a result of drinking, I neglected to protect myself or my partner from a sexually transmitted disease (STD) or an unwanted pregnancy.
27. I have neglected my obligations to family, work, or school because of drinking.
28. I often have ended up drinking on nights when I had planned not to drink.
29. When drinking, I have done impulsive things that I regretted later.
30. I have often found it difficult to limit how much I drink.
31. My drinking has gotten me into sexual situations I later regretted.
32. I've not been able to remember large stretches of time while drinking heavily.
33. While drinking, I have said harsh or cruel things to someone.
34. Because of my drinking I have not slept properly.
35. My physical appearance has been harmed by my drinking.
36. I have said things while drinking that I later regretted.
37. I have awakened the day after drinking and found that I could not remember a part of the evening before.
38. I have been overweight because of drinking.
39. I haven't been as sharp mentally because of my drinking.
40. I have received a lower grade on an exam or paper than I ordinarily could have because of my drinking.
41. I have tried to quit drinking because I thought I was drinking too much.
42. I have felt anxious, agitated, or restless after stopping or cutting down on drinking.
43. I have not had as much time to pursue activities or recreation because of drinking.
44. I have injured someone else while drinking or intoxicated.
45. I often have thought about needing to cut down or stop drinking.
46. I have had less energy or felt tired because of my drinking.
47. I have had a blackout after drinking heavily (i.e., could not remember hours at a time).
48. Drinking has made me feel depressed or sad.

Appendix F
Positive Drinking Consequences Questionnaire
(Corbin, Morean, & Benedict, 2008)

Please indicate the number of times you have experienced each of the following consequences of drinking in the past 12 months. Please do not report experiencing consequences simply because you believe that they ordinarily occur when you drink. Think about actual drinking occasions and report the consequences experienced on these occasions

0 1-2 3-5 6-10 >10

1. I approached a person that I probably wouldn't have spoken to otherwise.
2. I told a funny story or joke and made others laugh.
3. I revealed a personal feeling or emotion that I had previously kept secret.
4. I felt like I had enough energy to stay out all night partying or dancing.
5. In a situation in which I would usually have stayed quiet, I found it easy to make conversation.
6. I stood up for a friend or confronted someone who was in the wrong.
7. I found myself in a frightening situation and I felt surprisingly fearless.
8. I found a creative solution to a problem I might otherwise have had difficulty solving.
9. I felt especially confident that other people found me attractive.
10. The intensity of a sexual experience was enhanced.
11. I acted out a sexual fantasy that I might ordinarily be embarrassed to reveal or attempt.
12. On a particularly stressful day, I noticed a release of tension from my muscles and nerves.
13. Something that would have ordinarily made me upset or emotional didn't really get me down.
14. Things that I had been worrying about all day no longer seemed important.

Appendix G
College Alcohol Problems Scale – Revised
(Maddock, Laforge, Rossi & O'Hare, 2001)

Use the scale below to rate HOW OFTEN you have had any of the following problems over the past 12 months as a result of drinking alcoholic beverages.

1. Feeling sad, blue, or depressed
   1)never 2)yes, but not in the past year 3)1-2 times
   4)3-5 times 5)6-7 times 6)10 or more times

2. Nervousness, irritability
   1)never 2)yes, but not in the past year 3)1-2 times
   4)3-5 times 5)6-7 times 6)10 or more times

3. Caused you to feel bad about yourself
   1)never 2)yes, but not in the past year 3)1-2 times
   4)3-5 times 5)6-7 times 6)10 or more times

4. Problems with appetite or sleeping
   1)never 2)yes, but not in the past year 3)1-2 times
   4)3-5 times 5)6-7 times 6)10 or more times

5. Engaged in unplanned sexual activity
   1)never 2)yes, but not in the past year 3)1-2 times
   4)3-5 times 5)6-7 times 6)10 or more times

6. Drove under the influence
   1)never 2)yes, but not in the past year 3)1-2 times
   4)3-5 times 5)6-7 times 6)10 or more times

7. Did not use protection when engaging in sex
   1)never 2)yes, but not in the past year 3)1-2 times
   4)3-5 times 5)6-7 times 6)10 or more times

8. Illegal activities associated with drug use
   1)never 2)yes, but not in the past year 3)1-2 times
   4)3-5 times 5)6-7 times 6)10 or more times

Appendix H

Balanced Inventory of Desirable Responding
(Paulhus, 1994)

Participant #: _____

BIDR

Using the scale below as a guide, circle a number beside each statement to indicate how much you agree with it.

1 = Not true
2
3
4 = Somewhat true
5
6
7 = Very true

		Not true			Somewhat true			Very true
1.	My first impressions of people usually turn out to be right.	**1**	**2**	**3**	**4**	**5**	**6**	**7**
2.	It would be hard for me to break any of my bad habits.	**1**	**2**	**3**	**4**	**5**	**6**	**7**
3.	I don't care to know what other people really think of me.	**1**	**2**	**3**	**4**	**5**	**6**	**7**
4.	I have not always been honest with myself.	**1**	**2**	**3**	**4**	**5**	**6**	**7**
5.	I always know why I like things.	**1**	**2**	**3**	**4**	**5**	**6**	**7**
6.	When my emotions are aroused, it biases my thinking.	**1**	**2**	**3**	**4**	**5**	**6**	**7**
7.	Once I've made up my mind, other people can seldom change my opinion.	**1**	**2**	**3**	**4**	**5**	**6**	**7**
8.	I am not a safe driver when I exceed the speed limit.	**1**	**2**	**3**	**4**	**5**	**6**	**7**
9.	I am fully in control of my own fate.	**1**	**2**	**3**	**4**	**5**	**6**	**7**
10.	It's hard for me to shut off a disturbing thought.	**1**	**2**	**3**	**4**	**5**	**6**	**7**
11.	I never regret my decisions.	**1**	**2**	**3**	**4**	**5**	**6**	**7**
12.	I sometimes lose out on things because I can't make up my mind soon enough.	**1**	**2**	**3**	**4**	**5**	**6**	**7**
13.	The reason I vote is because my vote can make a difference.	**1**	**2**	**3**	**4**	**5**	**6**	**7**
14.	My parents were not always fair when they punished me.	**1**	**2**	**3**	**4**	**5**	**6**	**7**
15.	I am a completely rational person.	**1**	**2**	**3**	**4**	**5**	**6**	**7**
16.	I rarely appreciate criticism.	**1**	**2**	**3**	**4**	**5**	**6**	**7**
17.	I am very confident of my judgments.	**1**	**2**	**3**	**4**	**5**	**6**	**7**
18.	I have sometimes doubted my ability as a lover.	**1**	**2**	**3**	**4**	**5**	**6**	**7**

		Not true			Somewhat true			Very true
19.	It's all right with me if some people happen to dislike me.	**1**	**2**	**3**	**4**	**5**	**6**	**7**
20.	I don't always know the reasons why I do the things I do.	**1**	**2**	**3**	**4**	**5**	**6**	**7**
21.	I sometimes tell lies if I have to.	**1**	**2**	**3**	**4**	**5**	**6**	**7**
22.	I never cover up my mistakes.	**1**	**2**	**3**	**4**	**5**	**6**	**7**
23.	There have been occasions when I have taken advantage of someone.	**1**	**2**	**3**	**4**	**5**	**6**	**7**
24.	I never swear.	**1**	**2**	**3**	**4**	**5**	**6**	**7**
25.	I sometimes try to get even rather than forgive and forget.	**1**	**2**	**3**	**4**	**5**	**6**	**7**
26.	I always obey laws, even if I'm unlikely to get caught.	**1**	**2**	**3**	**4**	**5**	**6**	**7**
27.	I have said something bad about a friend behind his or her back.	**1**	**2**	**3**	**4**	**5**	**6**	**7**
28.	When I hear people talking privately, I avoid listening.	**1**	**2**	**3**	**4**	**5**	**6**	**7**
29.	I have received too much change from a salesperson without telling him or her.	**1**	**2**	**3**	**4**	**5**	**6**	**7**
30.	I always declare everything at customs.	**1**	**2**	**3**	**4**	**5**	**6**	**7**
31.	When I was young I sometimes stole things.	**1**	**2**	**3**	**4**	**5**	**6**	**7**
32.	I have never dropped litter on the street.	**1**	**2**	**3**	**4**	**5**	**6**	**7**
33.	I sometimes drive faster than the speed limit.	**1**	**2**	**3**	**4**	**5**	**6**	**7**
34.	I never read sexy books or magazines.	**1**	**2**	**3**	**4**	**5**	**6**	**7**
35.	I have done things that I don't tell other people about.	**1**	**2**	**3**	**4**	**5**	**6**	**7**
36.	I never take things that don't belong to me.	**1**	**2**	**3**	**4**	**5**	**6**	**7**
37.	I have taken sick-leave from work or school even though I wasn't really sick.	**1**	**2**	**3**	**4**	**5**	**6**	**7**
38.	I have never damaged a library book or store merchandise without reporting it.	**1**	**2**	**3**	**4**	**5**	**6**	**7**
39.	I have some pretty awful habits.	**1**	**2**	**3**	**4**	**5**	**6**	**7**
40.	I don't gossip about other people's business.	**1**	**2**	**3**	**4**	**5**	**6**	**7**

Appendix I
Rutgers Alcohol Problem Index
(White & Labouvie, 1989)

RUTGERS ALCOHOL PROBLEM INDEX
RAPI (23-item version)

Different things happen to people while they are drinking ALCOHOL or because of their ALCOHOL drinking. Several of these things are listed below. Indicate how many times each of these things happened to you WITHIN THE LAST YEAR.

Use the following code:

0 = None
1 = 1-2 times
2 = 3-5 times
3 = More than 5 times

HOW MANY TIMES HAS THIS HAPPENED TO YOU WHILE YOU WERE DRINKING OR BECAUSE OF YOUR DRINKING DURING THE LAST YEAR?

0 1 2 3 Not able to do your homework or study for a test
0 1 2 3 Got into fights with other people (friends, relatives, strangers)
0 1 2 3 Missed out on other things because you spent too much money on alcohol

0 1 2 3 Went to work or school high or drunk
0 1 2 3 Caused shame or embarrassment to someone
0 1 2 3 Neglected your responsibilities

0 1 2 3 Relatives avoided you
0 1 2 3 Felt that you needed more alcohol than you used to in order to get the same effect
0 1 2 3 Tried to control your drinking (tried to drink only at certain times of the day or in certain places, that is, tried to change your pattern of drinking)

0 1 2 3 Had withdrawal symptoms, that is, felt sick because you stopped or cut down on drinking
0 1 2 3 Noticed a change in your personality
0 1 2 3 Felt that you had a problem with alcohol

0 1 2 3 Missed a day (or part of a day) of school or work
0 1 2 3 Wanted to stop drinking but couldn't
0 1 2 3 Suddenly found yourself in a place that you could not remember getting to

0 1 2 3 Passed out or fainted suddenly
0 1 2 3 Had a fight, argument or bad feeling with a friend
0 1 2 3 Had a fight, argument or bad feeling with a family member

0 1 2 3 Kept drinking when you promised yourself not to
0 1 2 3 Felt you were going crazy
0 1 2 3 Had a bad time

0 1 2 3 Felt physically or psychologically dependent on alcohol
0 1 2 3 Was told by a friend, neighbor or relative to stop or cut down drinking

Appendix J
Personality Research Form – Infrequency Scale
Jackson (1984)

	True	**False**
1. I have never bought anything in a store.		
2. I can run a mile in less than 4 minutes.		
3. I could easily count from one to twenty-five.		
4. I have never talked to anyone by telephone.		
5. I usually wear something warm when I go outside on a very cold day.		
6. I make all my own clothes and shoes.		
7. I have never brushed or cleaned my teeth.		
8. Things with sugar in them usually taste sweet to me.		
9. Sometimes I see cars near my home.		
10. I have never had any hair on my head.		
11. I have traveled away from my home town.		
12. I have never ridden in an automobile.		
13. I have never felt sad.		
14. I try to get at least some sleep every night.		
15. Sometimes I feel very thirsty or hungry.		
16. I have attended school at some time during my life.		

Appendix K
Alcohol Use Disorder Identification Test
(Babor, La Fuente, Saunders, & Grant, 1992)

The Alcohol Use Disorders Identification Test: Self-Report Version

PATIENT: Because alcohol use can affect your health and can interfere with certain medications and treatments, it is important that we ask some questions about your use of alcohol. Your answers will remain confidential so please be honest.
Place an X in one box that best describes your answer to each question.

Questions	0	1	2	3	4	
1. How often do you have a drink containing alcohol?	Never	Monthly or less	2-4 times a month	2-3 times a week	4 or more times a week	
2. How many drinks containing alcohol do you have on a typical day when you are drinking?	1 or 2	3 or 4	5 or 6	7 to 9	10 or more	
3. How often do you have six or more drinks on one occasion?	Never	Less than monthly	Monthly	Weekly	Daily or almost daily	
4. How often during the last year have you found that you were not able to stop drinking once you had started?	Never	Less than monthly	Monthly	Weekly	Daily or almost daily	
5. How often during the last year have you failed to do what was normally expected of you because of drinking?	Never	Less than monthly	Monthly	Weekly	Daily or almost daily	
6. How often during the last year have you needed a first drink in the morning to get yourself going after a heavy drinking session?	Never	Less than monthly	Monthly	Weekly	Daily or almost daily	
7. How often during the last year have you had a feeling of guilt or remorse after drinking?	Never	Less than monthly	Monthly	Weekly	Daily or almost daily	
8. How often during the last year have you been unable to remember what happened the night before because of your drinking?	Never	Less than monthly	Monthly	Weekly	Daily or almost daily	
9. Have you or someone else been injured because of your drinking?	No		Yes, but not in the last year		Yes, during the last year	
10. Has a relative, friend, doctor, or other health care worker been concerned about your drinking or suggested you cut down?	No		Yes, but not in the last year		Yes, during the last year	

Appendix L
Centre for Epidemiological Studies of Depression Scale –Revised
(Eaton, Muntaner, Smith, Tien & Ybarra, 2004)

Center for Epidemiologic Studies Depression Scale – Revised (CESD-R)

Below is a list of the ways you might have felt or behaved. Please check the boxes to tell me how often you have felt this way in the past week or so.	Last Week				Nearly every day for 2 weeks
	Not at all *or* Less than 1 day	1 - 2 days	3 - 4 days	5 - 7 days	
My appetite was poor.	0	1	2	3	4
I could not shake off the blues.	0	1	2	3	4
I had trouble keeping my mind on what I was doing.	0	1	2	3	4
I felt depressed.	0	1	2	3	4
My sleep was restless.	0	1	2	3	4
I felt sad.	0	1	2	3	4
I could not get going.	0	1	2	3	4
Nothing made me happy.	0	1	2	3	4
I felt like a bad person.	0	1	2	3	4
I lost interest in my usual activities.	0	1	2	3	4
I slept much more than usual.	0	1	2	3	4
I felt like I was moving too slowly.	0	1	2	3	4
I felt fidgety.	0	1	2	3	4
I wished I were dead.	0	1	2	3	4
I wanted to hurt myself.	0	1	2	3	4
I was tired all the time.	0	1	2	3	4
I did not like myself.	0	1	2	3	4
I lost a lot of weight without trying to.	0	1	2	3	4
I had a lot of trouble getting to sleep.	0	1	2	3	4
I could not focus on the important things.	0	1	2	3	4

Appendix M
Drinker Inventory of Consequences
(Miller, Tonigan, & Longabaugh, 1995)

Here are a number of events that drinkers sometimes experience. Read each one carefully, and circle the number that indicates whether this has *ever* happened to you (0=No, 1=Yes). Then also indicate *how often* each one has happened to you *DURING THE PAST 3 MONTHS* by circling the appropriate number (0=Never, 1=Once or a few times, etc.). If an item does not apply to you, circle zero (0).

	Has this *EVER* happened to you? (circle one)		*DURING THE PAST 3 MONTHS*, about how often has this happened to you? (circle one)			
	No	Yes	Never	Once or a Few Times	Once or Twice a Week	Daily or Almost Every Day
1. I have had a hangover after drinking.	0	1	0	1	2	3
2. I have felt bad about myself because of my drinking.	0	1	0	1	2	3
3. I have missed days of work or school because of my drinking.	0	1	0	1	2	3
4. My family or friends have worried or complained about my drinking.	0	1	0	1	2	3
5. I have enjoyed the taste of beer, wine, or liquor.	0	1	0	1	2	3
6. The quality of my work has suffered because of my drinking.	0	1	0	1	2	3
7. My ability to be a good parent has been harmed by my drinking.	0	1	0	1	2	3
8. After drinking, I have had trouble with sleeping, staying asleep, or nightmares.	0	1	0	1	2	3
9. I have driven a motor vehicle after having three or more drinks.	0	1	0	1	2	3
10. My drinking has caused me to use other drugs more.	0	1	0	1	2	3
11. I have been sick and vomited after drinking.	0	1	0	1	2	3
12. I have been unhappy because of my drinking.	0	1	0	1	2	3

	Has this *EVER* happened to you? (circle one)		*DURING THE PAST 3 MONTHS*, about how often has this happened to you? (circle one)			
	No	Yes	Never	Once or a Few Times	Once or Twice a Week	Daily or Almost Every Day
13. Because of my drinking, I have not eaten properly.	0	1	0	1	2	3
14. I have failed to do what is expected of me because of my drinking.	0	1	0	1	2	3
15. Drinking has helped me to relax.	0	1	0	1	2	3
16. I have felt guilty or ashamed because of my drinking.	0	1	0	1	2	3
17. While drinking, I have said or done embarrassing things.	0	1	0	1	2	3
18. When drinking, my personality has changed for the worse.	0	1	0	1	2	3
19. I have taken foolish risks when I have been drinking.	0	1	0	1	2	3
20. I have gotten into trouble because of drinking.	0	1	0	1	2	3
21. While drinking, I have said harsh or cruel things to someone.	0	1	0	1	2	3
22. When drinking, I have done impulsive things that I regretted later.	0	1	0	1	2	3
23. I have gotten into a physical fight while drinking.	0	1	0	1	2	3

Now answer these questions about things that may have happened to you.

	Has this *EVER* happened to you?		*DURING THE PAST 3 MONTHS*, how much has this happened to you?			
	No	Yes	Not at All	A Little	Somewhat	Very Much
24. My physical health has been harmed by my drinking.	0	1	0	1	2	3
25. Drinking has helped me to have a more positive outlook on life.	0	1	0	1	2	3
26. I have had money problems because of my drinking.	0	1	0	1	2	3
27. My marriage or love relationship has been harmed by my drinking.	0	1	0	1	2	3
28. I have smoked more when I am drinking.	0	1	0	1	2	3
29. My physical appearance has been harmed by my drinking.	0	1	0	1	2	3
30. My family has been hurt by my drinking.	0	1	0	1	2	3
31. A friendship or close relationship has been damaged by my drinking.	0	1	0	1	2	3
32. I have been overweight because of my drinking.	0	1	0	1	2	3
33. My sex life has suffered because of my drinking.	0	1	0	1	2	3
34. I have lost interest in activities and hobbies because of my drinking.	0	1	0	1	2	3
35. When drinking, my social life has been more enjoyable.	0	1	0	1	2	3
36. My spiritual or moral life has been harmed by my drinking.	0	1	0	1	2	3
37. Because of my drinking, I have not had the kind of life that I want.	0	1	0	1	2	3
38. My drinking has gotten in the way of my growth as a person.	0	1	0	1	2	3
39. My drinking has damaged my social life, popularity, or reputation.	0	1	0	1	2	3
40. I have spent too much or lost a lot of money because of my drinking.	0	1	0	1	2	3

Now please indicate whether these things have happened to you.

	Has this *EVER* happened to you?		Has this happened to you *DURING THE PAST 3 MONTHS*?			
	No	Yes	No	Almost	Yes, Once	Yes, More Than Once
41. I have been arrested for driving under the influence of alcohol	0	1	0	1	2	3
42. I have had trouble with the law (other than driving while intoxicated) because of my drinking.	0	1	0	1	2	3
43. I have lost a marriage or a close love relationship because of my drinking.	0	1	0	1	2	3
44. I have been suspended/fired from or left a job or school because of my drinking.	0	1	0	1	2	3
45. I drank alcohol normally, without any problems.	0	1	0	1	2	3
46. I have lost a friend because of my drinking.	0	1	0	1	2	3
47. I have had an accident while drinking or intoxicated.	0	1	0	1	2	3
48. While drinking or intoxicated, I have been physically hurt, injured, or burned.	0	1	0	1	2	3
49. While drinking or intoxicated, I have injured someone else.	0	1	0	1	2	3
50. I have broken things or damaged property while drinking or intoxicated.	0	1	0	1	2	3

Appendix N
Information Sheet – Study One

Information Sheet

Title of the Research Study: Positive and Negative Consequences of Drinking Alcohol

Principal Investigator: Dr. Christopher Mushquash, Lakehead University
Email: chris.mushquash@lakeheadu.ca
Phone: (807) 343-8239

Student Investigator: Sarah Sinclair, Lakehead University
Email: ssinclai@lakeheadu.ca

Thank you for taking part in this research study. The purpose of this study is to better understand the consequences and outcomes of alcohol use. There are some positive and negative consequences of alcohol use that have been missed in other research.

If you have felt distressed during your participation in this study, or feel distressed at a later point, please feel free to contact Dr. Mushquash, by phone at (807) 343-8239 or by email at chris.mushquash@lakeheadu.ca. He will meet with you and help to connect you with appropriate services to help deal with your distress.

As a student at Lakehead University, you are also able access counselling services through the Student Health and Counselling Centre at Lakehead University. Call (807)-343-8361 to book an appointment.

If you need **immediate** help for feelings of distress, please call the Crisis Response Service at 1-888-269-3100.
PLEASE COPY OR PRINT THIS INFORMATION FOR YOUR RECORDS. (To print, click 'File' > 'Print')

Questions
If you have any questions about this study or your participation, you may contact the Principal Investigator, Dr. Mushquash, by emailing chris.mushquash@lakeheadu.ca.

This research study has been reviewed and approved by the Lakehead University Research Ethics Board. If you have any questions related to the ethics of the research and would like to speak to someone other than the researchers, please contact Sue Wright at the Research Ethics Board at 807-343-8283 or research@lakeheadu.ca.

Appendix O
Consent Form – Study Two

Consent Form

Title of the Research Study: Positive and Negative Consequences of Drinking Alcohol - 2

Principal Investigator: Dr. Christopher Mushquash, Lakehead University
Email: chris.mushquash@lakeheadu.ca
Phone: (807) 343-8239

Student Investigator: Sarah Sinclair, Lakehead University
Email: ssinclai@lakeheadu.ca

Introduction
We invite you to take part in a research study being conducted by Dr. Christopher Mushquash and Sarah Sinclair. Your participation in this study is voluntary and you may withdraw anytime prior to submission of the survey.

Purpose of this study
The main purpose of this study is to better understand the consequences and outcomes of alcohol use. There are some positive and negative consequences of alcohol use that have been missed in other research.

Study design
This study involves approximately 30 minutes of participation, which involves the completion of a battery of questionnaires online. Approximately 400 individuals will be recruited for this study.

Who can participate in this study?
You must speak and read fluently in English. You must be a university student and have access to the Internet. You must have consumed at least one alcoholic drink in the last 3 months to be able to participate. One standard alcoholic drink is defined as either: 1 bottle/can of beer, 1 glass of wine, or 1 shot of hard liquor (either straight or with a mixer).

Who will be conducting the research?
Dr. Christopher Mushquash and Sarah Sinclair will be conducting the research.

What YOU will be asked to do:
You will be asked to complete a series of questionnaires about your emotions and things that may have happened to you because of drinking. Examples of things that may have happened include feeling a relief from stress or missing school. It will take approximately 30 minutes to complete online via Survey Monkey. You may choose not to answer any question. All questions are completely anonymous, and there is no way to link your name to your answers. You are free to withdraw from the study at any time prior to the submission of the survey. Once the survey is submitted, your responses cannot be removed because they are anonymous and there is no way to link your name to your data. The researcher will not contact you about any of your answers because this is not possible; there is no way for the researcher to know how you answered the questions.

Possible risks and discomforts

There is a possibility that answering some of the questions asked in this study may cause you distress. Some questions ask you about possible suicidal thoughts or behaviours. Some questions ask about possible illegal behaviours. If you are distressed during or after your participation in this study, please feel free to contact Dr. Mushquash, by phone at (807) 343-8239 or by email at chris.mushquash@lakeheadu.ca. He will meet with you and help to connect you with appropriate services to help deal with your distress. As a student at Lakehead University, you are also able access counselling services through the Student Health and Counselling Centre at Lakehead University. Call (807)-343-8361 to book an appointment. If you need immediate help for feelings of distress, please call the Crisis Response Service at 1-888-269-3100. This study is voluntary. You are free to discontinue participation at any time if you feel discomfort.

PLEASE COPY OR PRINT THIS INFORMATION FOR YOUR RECORDS. (To print, click 'File' > 'Print')

Possible benefits

There are no direct benefits anticipated as a result of participating in this study. However, you will have an opportunity to learn about the results of this study at the completion of the project. If you are interested in learning more about the results of this study, please contact Dr. Mushquash. He will arrange for you to receive a written summary of the results of the study via email. No individual results will be provided in this summary. Results will only be presented in grouped format. This summary will describe the results of the study and potential implications of the findings in a non-technical format. This study will also provide indirect benefits by increasing our knowledge of the consequences of alcohol use.

Compensation/reimbursement

You will be offered one bonus credit for participating in this study. If you are not eligible to receive bonus credits from the Participant Pool in the Department of Psychology, your name will be placed in a draw to win $100. If you are eligible for bonus points but would rather be in a draw to win $100, you can choose this option.

Confidentiality and anonymity

Anonymity: Your individual data will not be identified in any reports or publications. Data will only be presented in grouped format. Identifiable information (e.g., contact email) will not be linked to your survey responses in any way. Several steps have also been taken to protect your confidentiality (see below).

Confidentiality: All information obtained is strictly confidential. Several precautions will also taken to protect the confidentiality of data collected via the Internet. First, all data collected through the Internet will be encrypted when it is sent electronically. Second, any identifiable information collected will not be connected to your responses. Third, we will be utilizing a survey company that uses the highest levels of security regarding the collection, transmission, and storage of data collected though the Internet. This includes sending data in an encrypted format when data are transmitted electronically, a secure database, and password protection to access the data. Only the Principal Investigator will have access to this password. The survey company will not have access to any identifying information about you.

Consistent with the Lakehead University's policy on research integrity data, electronic versions of the data will be retained for a minimum of 5 years, up to an indefinite period of time, and will be kept in a password-protected computer in the locked laboratory of the Principal Investigator. Data from Survey Monkey will be kept electronically until the Principal Investigator has deleted the survey account. Deleted data may remain for a maximum of 12 months in accordance with Survey Monkey's policy. Electronic versions of the data will not include your name or contact information but will contain the following information about you: age, sex, weight, height, ethnicity (i.e., self-reported ethnicity and country of birth), length of time lived in Canada, occupation, nature of employment (e.g., full-time, part-time, etc.), years of formal education, year of study if you are a university student, total annual family income, and the number of individuals supported by this family income.

Questions

If you have any questions about this study or your participation, you may contact the Principal Investigator, Dr. Mushquash, by emailing chris.mushquash@lakeheadu.ca.

This research study has been reviewed and approved by the Lakehead University Research Ethics Board. If you have any questions related to the ethics of the research and would like to speak to someone other than the researchers, please contact Sue Wright at the Research Ethics Board at 807-343-8283 or research@lakeheadu.ca.

I have read and understood the explanation of this study. I understand the potential risks and benefits. I have been given an opportunity to discuss this study and my questions have been answered to my satisfaction. I realize that my participation is voluntary and I am free to withdraw from this study at any time prior to submission of the survey.

- ○ I consent to take part in this study.
- ○ I do not consent to take part in this study.

Appendix P
CAM Items: Study Two

Original Item	CAM Item	
CAM4	CAM1	I have failed to do things I was responsible for
YAACQ3	CAM2	I have felt badly about myself because of my drinking.
YAACQ7	CAM3	I have taken foolish risks when I have been drinking.
YAACQ12	CAM4	I have been unhappy because of my drinking.
PDCQ5	CAM5	In a situation in which I would usually have stayed quiet, I found it easy to make conversation.
YAACQ33	CAM6	While drinking, I have said harsh or cruel things to someone.
YAACQ45	CAM7	I often have thought about needing to cut down or stop drinking.
PDCQ4	CAM8	I felt like I had enough energy to stay out all night partying or dancing.
YAACQ48	CAM9	Drinking has made me feel depressed or sad.
PDCQ1	CAM10	I approached a person that I probably wouldn't have spoken to otherwise.
PDCQ2	CAM11	I told a funny story or joke and made others laugh.
YAACQ47	CAM12	I have had a blackout after drinking heavily (i.e., could not remember hours at a time).
PDCQ12	CAM13	On a particularly stressful day, I noticed a release of tension from my muscles and nerves.
YAACQ18	CAM14	I have felt guilty about my drinking.
CAPS-R3	CAM15	Caused you to feel bad about yourself
PDCQ14	CAM16	Things that I had been worrying about all day no longer seemed important.
CAPS-R1	CAM17	Feeling sad, blue, or depressed
PDCQ13	CAM18	Something that would have ordinarily made me upset or emotional didn't really get me down.
RAPI2	CAM19	Got into physical fights with other people (friends, relatives, strangers)
RAPI13	CAM20	Missed a day (or part of a day) of school or work
DRC2	CAM21	I have felt bad about myself because of my drinking.
DRC3	CAM22	I have missed days of work or school because of my drinking.
DRC5	CAM23	I have enjoyed the taste of beer, wine, or liquor.
DRC12	CAM24	I have been unhappy because of my drinking.
DRC15	CAM25	Drinking has helped me to relax.
DRC16	CAM26	I have felt guilty or ashamed because of my drinking.
DRC20	CAM27	I have gotten into trouble because of drinking
DRC21	CAM28	While drinking, I have said harsh or cruel things to someone.
DRC35	CAM29	When drinking, my social life has been more enjoyable.
DRC38	CAM30	My drinking has gotten in the way of my growth as a person.
DRC45	CAM31	I drank alcohol normally, without any problems.
CAM55	CAM32	I noticed a release of tension on a stressful day
CAM60	CAM33	I stopped worrying about things I had been thinking about all day
CAM21	CAM34	I found it easy to make conversation in a situation where I would usually have stayed quiet

Appendix Q
Final Consequences of Alcohol Measure and Scoring Worksheet

Consequences of Alcohol Measure

People experience different things while they are drinking alcohol or because of alcohol. Please indicate how often in the last 12 MONTHS these things have happened to you. Please indicate how it made you feel.

In the last 12 months, **while I was drinking** alcohol, or **because of drinking** alcohol...

1. I have failed to do things I was responsible for

Never	Less than Monthly	Monthly	Weekly	Daily or Almost Daily
1	2	3	4	5

If this has happened to you, how did it make you feel?

Does Not Apply	Very Good	Good	Neutral	Bad	Very Bad
0	1	2	3	4	5

2. I stopped worrying about things I had been thinking about all day

Never	Less than Monthly	Monthly	Weekly	Daily or Almost Daily
1	2	3	4	5

If this has happened to you, how did it make you feel?

Does Not Apply	Very Good	Good	Neutral	Bad	Very Bad
0	1	2	3	4	5

3. While drinking, I have said harsh or cruel things to someone

Never	Less than Monthly	Monthly	Weekly	Daily or Almost Daily
1	2	3	4	5

If this has happened to you, how did it make you feel?

Does Not Apply	Very Good	Good	Neutral	Bad	Very Bad
0	1	2	3	4	5

4. I often have thought about needing to cut down or stop drinking

Never	Less than Monthly	Monthly	Weekly	Daily or Almost Daily
1	2	3	4	5

If this has happened to you, how did it make you feel?

Does Not Apply	Very Good	Good	Neutral	Bad	Very Bad
0	1	2	3	4	5

5. I approached a person that I probably wouldn't have spoken to otherwise

Never	Less than Monthly	Monthly	Weekly	Daily or Almost Daily
1	2	3	4	5

If this has happened to you, how did it make you feel?

Does Not Apply	Very Good	Good	Neutral	Bad	Very Bad
0	1	2	3	4	5

6. I told a funny story or joke and made others laugh

Never	Less than Monthly	Monthly	Weekly	Daily or Almost Daily
1	2	3	4	5

If this has happened to you, how did it make you feel?

Does Not Apply	Very Good	Good	Neutral	Bad	Very Bad
0	1	2	3	4	5

7. I have had a blackout after drinking heavily (i.e., could not remember hours at a time)

Never	Less than Monthly	Monthly	Weekly	Daily or Almost Daily
1	2	3	4	5

If this has happened to you, how did it make you feel?

Does Not Apply	Very Good	Good	Neutral	Bad	Very Bad
0	1	2	3	4	5

8. I have felt guilty about my drinking

Never	Less than Monthly	Monthly	Weekly	Daily or Almost Daily
1	2	3	4	5

If this has happened to you, how did it make you feel?

Does Not Apply	Very Good	Good	Neutral	Bad	Very Bad
0	1	2	3	4	5

Consequences of Alcohol Measure

In the last 12 months, **while I was drinking** alcohol, or **because of drinking** alcohol...

9. Missed a day (or part of a day) of school or work

If this has happened to you, how did it make you feel?

Never	Less than Monthly	Monthly	Weekly	Daily or Almost Daily	Does Not Apply	Very Good	Good	Neutral	Bad	Very Bad
1	2	3	4	5	0	1	2	3	4	5

10. Something that would have ordinarily made me upset or emotional didn't really get me down

If this has happened to you, how did it make you feel?

Never	Less than Monthly	Monthly	Weekly	Daily or Almost Daily	Does Not Apply	Very Good	Good	Neutral	Bad	Very Bad
1	2	3	4	5	0	1	2	3	4	5

11. Got into physical fights with other people (friends, relatives, strangers)

If this has happened to you, how did it make you feel?

Never	Less than Monthly	Monthly	Weekly	Daily or Almost Daily	Does Not Apply	Very Good	Good	Neutral	Bad	Very Bad
1	2	3	4	5	0	1	2	3	4	5

12. I have felt bad about myself because of my drinking

If this has happened to you, how did it make you feel?

Never	Less than Monthly	Monthly	Weekly	Daily or Almost Daily	Does Not Apply	Very Good	Good	Neutral	Bad	Very Bad
1	2	3	4	5	0	1	2	3	4	5

13. I have enjoyed the taste of beer, wine, or liquor

If this has happened to you, how did it make you feel?

Never	Less than Monthly	Monthly	Weekly	Daily or Almost Daily	Does Not Apply	Very Good	Good	Neutral	Bad	Very Bad
1	2	3	4	5	0	1	2	3	4	5

14. I have been unhappy because of my drinking

If this has happened to you, how did it make you feel?

Never	Less than Monthly	Monthly	Weekly	Daily or Almost Daily	Does Not Apply	Very Good	Good	Neutral	Bad	Very Bad
1	2	3	4	5	0	1	2	3	4	5

15. Drinking has helped me to relax

If this has happened to you, how did it make you feel?

Never	Less than Monthly	Monthly	Weekly	Daily or Almost Daily	Does Not Apply	Very Good	Good	Neutral	Bad	Very Bad
1	2	3	4	5	0	1	2	3	4	5

16. I have gotten into trouble because of drinking

If this has happened to you, how did it make you feel?

Never	Less than Monthly	Monthly	Weekly	Daily or Almost Daily	Does Not Apply	Very Good	Good	Neutral	Bad	Very Bad
1	2	3	4	5	0	1	2	3	4	5

17. I felt sad, blue, or depressed

If this has happened to you, how did it make you feel?

Never	Less than Monthly	Monthly	Weekly	Daily or Almost Daily	Does Not Apply	Very Good	Good	Neutral	Bad	Very Bad
1	2	3	4	5	0	1	2	3	4	5

Consequences of Alcohol Measure

In the last 12 months, **while I was drinking** alcohol, or **because of drinking** alcohol…

18. I drank alcohol normally, without any problems

Never	Less than Monthly	Monthly	Weekly	Daily or Almost Daily
1	2	3	4	5

If this has happened to you, how did it make you feel?

Does Not Apply	Very Good	Good	Neutral	Bad	Very Bad
0	1	2	3	4	5

19. When drinking, my social life has been more enjoyable

Never	Less than Monthly	Monthly	Weekly	Daily or Almost Daily
1	2	3	4	5

If this has happened to you, how did it make you feel?

Does Not Apply	Very Good	Good	Neutral	Bad	Very Bad
0	1	2	3	4	5

20. My drinking has gotten in the way of my growth as a person

Never	Less than Monthly	Monthly	Weekly	Daily or Almost Daily
1	2	3	4	5

If this has happened to you, how did it make you feel?

Does Not Apply	Very Good	Good	Neutral	Bad	Very Bad
0	1	2	3	4	5

21. I noticed a release of tension on a stressful day

Never	Less than Monthly	Monthly	Weekly	Daily or Almost Daily
1	2	3	4	5

If this has happened to you, how did it make you feel?

Does Not Apply	Very Good	Good	Neutral	Bad	Very Bad
0	1	2	3	4	5

22. I have taken foolish risks when I have been drinking

Never	Less than Monthly	Monthly	Weekly	Daily or Almost Daily
1	2	3	4	5

If this has happened to you, how did it make you feel?

Does Not Apply	Very Good	Good	Neutral	Bad	Very Bad
0	1	2	3	4	5

23. Things that I had been worrying about all day no longer seemed important

Never	Less than Monthly	Monthly	Weekly	Daily or Almost Daily
1	2	3	4	5

If this has happened to you, how did it make you feel?

Does Not Apply	Very Good	Good	Neutral	Bad	Very Bad
0	1	2	3	4	5

24. I have missed days of work or school because of my drinking

Never	Less than Monthly	Monthly	Weekly	Daily or Almost Daily
1	2	3	4	5

If this has happened to you, how did it make you feel?

Does Not Apply	Very Good	Good	Neutral	Bad	Very Bad
0	1	2	3	4	5

25. I found it easy to make conversation in a situation where I would usually have stayed quiet

Never	Less than Monthly	Monthly	Weekly	Daily or Almost Daily
1	2	3	4	5

If this has happened to you, how did it make you feel?

Does Not Apply	Very Good	Good	Neutral	Bad	Very Bad
0	1	2	3	4	5

CAM Scoring Worksheet

Add Items	Add Valence	Add Items	Add Valence	Add Items	Add Valence
2 __	2 __	1 __	1 __	4 __	4 __
5 __	5 __	3 __	3 __	8 __	8 __
6 __	6 __	7 __	7 __	12 __	12 __
10 __	10 __	9 __	9 __	14 __	14 __
13 __	13 __	11 __	11 __	17 __	17 __
15 __	15 __	16 __	16 __	20 __	20 __
18 __	18 __	22 __	22 __		
19 __	19 __	24 __	24 __	__ / 30	__ / 30
21 __	21 __			Total E	Total F
23 __	23 __				
25 __	25 __				
__ / 55	__ / 55	__ / 40	__ / 40		
Total A	Total B	Total C	Total D		

Total **A** __ Positive Consequences subscale

\+

Total **C** __ Negative Behavioural Consequences subscale

\+

Total **E** __ Negative Emotional Consequences subscale

_____ **TOTAL CAM SCORE**

Total **B** __ Positive Consequences valence

\+

Total **D** __ Negative Emotional valence

\+

Total **F** __ Negative Behavioural valence

_____ **TOTAL Valence rating SCORE**

Appendix R
Final Consequences of Alcohol Measure - Extended and Scoring Worksheet

Consequences of Alcohol Measure

People experience different things while they are drinking alcohol or because of alcohol. Please indicate how often in the last 12 MONTHS these things have happened to you. Please indicate how it made you feel.

In the last 12 months, **while I was drinking** alcohol, or **because of drinking** alcohol...

1. I have failed to do things I was responsible for

Never	Less than Monthly	Monthly	Weekly	Daily or Almost Daily
1	2	3	4	5

If this has happened to you, how did it make you feel?

Does Not Apply	Very Good	Good	Neutral	Bad	Very Bad
0	1	2	3	4	5

2. I stopped worrying about things I had been thinking about all day

Never	Less than Monthly	Monthly	Weekly	Daily or Almost Daily
1	2	3	4	5

If this has happened to you, how did it make you feel?

Does Not Apply	Very Good	Good	Neutral	Bad	Very Bad
0	1	2	3	4	5

3. While drinking, I have said harsh or cruel things to someone

Never	Less than Monthly	Monthly	Weekly	Daily or Almost Daily
1	2	3	4	5

If this has happened to you, how did it make you feel?

Does Not Apply	Very Good	Good	Neutral	Bad	Very Bad
0	1	2	3	4	5

4. I often have thought about needing to cut down or stop drinking

Never	Less than Monthly	Monthly	Weekly	Daily or Almost Daily
1	2	3	4	5

If this has happened to you, how did it make you feel?

Does Not Apply	Very Good	Good	Neutral	Bad	Very Bad
0	1	2	3	4	5

5. I approached a person that I probably wouldn't have spoken to otherwise

Never	Less than Monthly	Monthly	Weekly	Daily or Almost Daily
1	2	3	4	5

If this has happened to you, how did it make you feel?

Does Not Apply	Very Good	Good	Neutral	Bad	Very Bad
0	1	2	3	4	5

6. I told a funny story or joke and made others laugh

Never	Less than Monthly	Monthly	Weekly	Daily or Almost Daily
1	2	3	4	5

If this has happened to you, how did it make you feel?

Does Not Apply	Very Good	Good	Neutral	Bad	Very Bad
0	1	2	3	4	5

7. I have had a blackout after drinking heavily (i.e., could not remember hours at a time)

Never	Less than Monthly	Monthly	Weekly	Daily or Almost Daily
1	2	3	4	5

If this has happened to you, how did it make you feel?

Does Not Apply	Very Good	Good	Neutral	Bad	Very Bad
0	1	2	3	4	5

8. I have felt guilty about my drinking

Never	Less than Monthly	Monthly	Weekly	Daily or Almost Daily
1	2	3	4	5

If this has happened to you, how did it make you feel?

Does Not Apply	Very Good	Good	Neutral	Bad	Very Bad
0	1	2	3	4	5

Consequences of Alcohol Measure

In the last 12 months, **while I was drinking** alcohol, or **because of drinking** alcohol...

9. Missed a day (or part of a day) of school or work

If this has happened to you, how did it make you feel?

Never	Less than Monthly	Monthly	Weekly	Daily or Almost Daily	Does Not Apply	Very Good	Good	Neutral	Bad	Very Bad
1	2	3	4	5	0	1	2	3	4	5

10. Something that would have ordinarily made me upset or emotional didn't really get me down

If this has happened to you, how did it make you feel?

Never	Less than Monthly	Monthly	Weekly	Daily or Almost Daily	Does Not Apply	Very Good	Good	Neutral	Bad	Very Bad
1	2	3	4	5	0	1	2	3	4	5

11. Got into physical fights with other people (friends, relatives, strangers)

If this has happened to you, how did it make you feel?

Never	Less than Monthly	Monthly	Weekly	Daily or Almost Daily	Does Not Apply	Very Good	Good	Neutral	Bad	Very Bad
1	2	3	4	5	0	1	2	3	4	5

12. I have felt bad about myself because of my drinking

If this has happened to you, how did it make you feel?

Never	Less than Monthly	Monthly	Weekly	Daily or Almost Daily	Does Not Apply	Very Good	Good	Neutral	Bad	Very Bad
1	2	3	4	5	0	1	2	3	4	5

13. I have enjoyed the taste of beer, wine, or liquor

If this has happened to you, how did it make you feel?

Never	Less than Monthly	Monthly	Weekly	Daily or Almost Daily	Does Not Apply	Very Good	Good	Neutral	Bad	Very Bad
1	2	3	4	5	0	1	2	3	4	5

14. I have been unhappy because of my drinking

If this has happened to you, how did it make you feel?

Never	Less than Monthly	Monthly	Weekly	Daily or Almost Daily	Does Not Apply	Very Good	Good	Neutral	Bad	Very Bad
1	2	3	4	5	0	1	2	3	4	5

15. Drinking has helped me to relax

If this has happened to you, how did it make you feel?

Never	Less than Monthly	Monthly	Weekly	Daily or Almost Daily	Does Not Apply	Very Good	Good	Neutral	Bad	Very Bad
1	2	3	4	5	0	1	2	3	4	5

16. I have gotten into trouble because of drinking

If this has happened to you, how did it make you feel?

Never	Less than Monthly	Monthly	Weekly	Daily or Almost Daily	Does Not Apply	Very Good	Good	Neutral	Bad	Very Bad
1	2	3	4	5	0	1	2	3	4	5

17. I felt sad, blue, or depressed

If this has happened to you, how did it make you feel?

Never	Less than Monthly	Monthly	Weekly	Daily or Almost Daily	Does Not Apply	Very Good	Good	Neutral	Bad	Very Bad
1	2	3	4	5	0	1	2	3	4	5

Consequences of Alcohol Measure

In the last 12 months, **while I was drinking** alcohol, or **because of drinking** alcohol…

18. I drank alcohol normally, without any problems

Never	Less than Monthly	Monthly	Weekly	Daily or Almost Daily
1	2	3	4	5

If this has happened to you, how did it make you feel?

Does Not Apply	Very Good	Good	Neutral	Bad	Very Bad
0	1	2	3	4	5

19. When drinking, my social life has been more enjoyable

Never	Less than Monthly	Monthly	Weekly	Daily or Almost Daily
1	2	3	4	5

If this has happened to you, how did it make you feel?

Does Not Apply	Very Good	Good	Neutral	Bad	Very Bad
0	1	2	3	4	5

20. My drinking has gotten in the way of my growth as a person

Never	Less than Monthly	Monthly	Weekly	Daily or Almost Daily
1	2	3	4	5

If this has happened to you, how did it make you feel?

Does Not Apply	Very Good	Good	Neutral	Bad	Very Bad
0	1	2	3	4	5

21. I noticed a release of tension on a stressful day

Never	Less than Monthly	Monthly	Weekly	Daily or Almost Daily
1	2	3	4	5

If this has happened to you, how did it make you feel?

Does Not Apply	Very Good	Good	Neutral	Bad	Very Bad
0	1	2	3	4	5

22. I have taken foolish risks when I have been drinking

Never	Less than Monthly	Monthly	Weekly	Daily or Almost Daily
1	2	3	4	5

If this has happened to you, how did it make you feel?

Does Not Apply	Very Good	Good	Neutral	Bad	Very Bad
0	1	2	3	4	5

23. Things that I had been worrying about all day no longer seemed important

Never	Less than Monthly	Monthly	Weekly	Daily or Almost Daily
1	2	3	4	5

If this has happened to you, how did it make you feel?

Does Not Apply	Very Good	Good	Neutral	Bad	Very Bad
0	1	2	3	4	5

24. I have missed days of work or school because of my drinking

Never	Less than Monthly	Monthly	Weekly	Daily or Almost Daily
1	2	3	4	5

If this has happened to you, how did it make you feel?

Does Not Apply	Very Good	Good	Neutral	Bad	Very Bad
0	1	2	3	4	5

25. I found it easy to make conversation in a situation where I would usually have stayed quiet

Never	Less than Monthly	Monthly	Weekly	Daily or Almost Daily
1	2	3	4	5

If this has happened to you, how did it make you feel?

Does Not Apply	Very Good	Good	Neutral	Bad	Very Bad
0	1	2	3	4	5

Consequences of Alcohol Measure

Suicide is the act of trying to end your own life.

In the last 12 months, **while I was drinking** alcohol, or **because of drinking** alcohol…

26. I have had thoughts of suicide

If this has happened to you, how did it make you feel?

Never	Less than Monthly	Monthly	Weekly	Daily or Almost Daily	Does Not Apply	Very Good	Good	Neutral	Bad	Very Bad
1	2	3	4	5	0	1	2	3	4	5

27. I have threatened to commit suicide

If this has happened to you, how did it make you feel?

Never	Less than Monthly	Monthly	Weekly	Daily or Almost Daily	Does Not Apply	Very Good	Good	Neutral	Bad	Very Bad
1	2	3	4	5	0	1	2	3	4	5

28. I have made a suicide attempt

If this has happened to you, how did it make you feel?

Never	Less than Monthly	Monthly	Weekly	Daily or Almost Daily	Does Not Apply	Very Good	Good	Neutral	Bad	Very Bad
1	2	3	4	5	0	1	2	3	4	5

29. I have wished I was dead

If this has happened to you, how did it make you feel?

Never	Less than Monthly	Monthly	Weekly	Daily or Almost Daily	Does Not Apply	Very Good	Good	Neutral	Bad	Very Bad
1	2	3	4	5	0	1	2	3	4	5

30. I have had thoughts of suicide, even though I had not thought about suicide when I was sober

If this has happened to you, how did it make you feel?

Never	Less than Monthly	Monthly	Weekly	Daily or Almost Daily	Does Not Apply	Very Good	Good	Neutral	Bad	Very Bad
1	2	3	4	5	0	1	2	3	4	5

Sometimes people physically injure themselves without the intention to die (e.g., scratches, cuts, burns), for different reasons.

In the last 12 months, **while I was drinking** alcohol, or **because of drinking** alcohol…

31. I have done something to harm myself

If this has happened to you, how did it make you feel?

Never	Less than Monthly	Monthly	Weekly	Daily or Almost Daily	Does Not Apply	Very Good	Good	Neutral	Bad	Very Bad
1	2	3	4	5	0	1	2	3	4	5

32. I have injured myself on purpose without the intention to die

If this has happened to you, how did it make you feel?

Never	Less than Monthly	Monthly	Weekly	Daily or Almost Daily	Does Not Apply	Very Good	Good	Neutral	Bad	Very Bad
1	2	3	4	5	0	1	2	3	4	5

33. I have harmed myself more than I meant to

If this has happened to you, how did it make you feel?

Never	Less than Monthly	Monthly	Weekly	Daily or Almost Daily	Does Not Apply	Very Good	Good	Neutral	Bad	Very Bad
1	2	3	4	5	0	1	2	3	4	5

CAM Scoring Worksheet

Add Items	Add Valence	Add Items	Add Valence	Add Items	Add Valence
2 __	2 __	1 __	1 __	4 __	4 __
5 __	5 __	3 __	3 __	8 __	8 __
6 __	6 __	7 __	7 __	12 __	12 __
10 __	10 __	9 __	9 __	14 __	14 __
13 __	13 __	11 __	11 __	17 __	17 __
15 __	15 __	16 __	16 __	20 __	20 __
18 __	18 __	22 __	22 __		
19 __	19 __	24 __	24 __	__ / 30	__ / 30
21 __	21 __			Total E	Total F
23 __	23 __				
25 __	25 __	__ / 40	__ / 40		
		Total C	Total D		
__ / 55	__ / 55				
Total A	Total B				

Total **A** __ + Total **C** __ + Total **E** __ Positive Consequences subscale

Negative Behavioural Consequences subscale

Negative Emotional Consequences subscale

_____ **TOTAL CAM SCORE**

Total **B** __ + Total **D** __ + Total **F** __ Positive Consequences valence

Negative Behavioural Consequences valence

Negative Emotional Consequences valence

_____ **TOTAL Valence rating SCORE**

Total **G** __ Suicide/Self-Harm Consequences

Total **H** __ Suicide/Self-Harm Consequences valence

Suicide/Self-Harm

Add Items	Add Valence
26__	26__
27__	27__
28__	28__
29__	29__
30__	30__
31__	31__
32__	32__
33__	33__
__ / 40	__ / 40
Total G	Total H