

University Students' Drinking Motives: Relationship with Alcohol Use

A thesis submitted in partial fulfilment of the requirements for the degree of

Master of Arts in Clinical Psychology

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by

Jabulani Maphisa Maphisa

G13M5110

Supervisor: Professor C. Young

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Declaration

I declare that this thesis is my own work and that any work that is not mine has been rightfully and properly acknowledged. The thesis is submitted for the degree of Master of Arts (Clinical Psychology) at Rhodes University. It has not been submitted before for any degree or examination at any other university.

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Jabulani Maphisa Maphisa

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Dedicated to my father, you left us too soon.

“Que sera sera”

Abstract

Alcohol use among university students is a worldwide social and clinical reality. Understanding and addressing this phenomena is an imperative recognised by the government of South Africa and its Higher Education institutions, where student drinking has a plethora of negative consequences. This study builds on the work of Young and de Klerk (2012) with Rhodes University students by adding drinking motives to their findings of demographic correlates. The motivational model of alcohol use (Cox & Klinger, 1988) posits that drinking motives are a proximal predictor of alcohol use. The model further delineates four drinking motives (social, enhancement, coping, and conformity) which are hypothesized to lead to phenomenological distinct patterns of alcohol use.

An online survey method was utilized to collect data and a representative sample of 501 students participated. Descriptive and inferential statistics were computed to address five research questions: (1) to establishing the current alcohol use trend; (2) to investigate the demographic factors associated with alcohol use; (3) to describe students' drinking motives; (4) to explore the correlates of drinking motives; and, finally, the primary aim was (5) to investigate whether students' drinking motives predicted alcohol use when controlling for the effects of descriptive drinking norms and demographic variables.

The results indicate that 68.5% of participants currently consume alcohol, and 51.0 % of these drinking students consume five or more drinks during a drinking session. 20.7 % of the drinking students used alcohol at the harmful or alcohol dependent levels. Increased alcohol use was associated more with males, undergraduates, early onset drinkers, more disposable income, and students' perceptions of their peers' drinking. Students endorsed enhancement motives marginally more than social motives, followed by coping and conformity motives. Males, early onset drinkers, black students, and at risk (of alcohol use disorders) students endorsed more motives, especially social and enhancement motives. Of

primary concern was the role of drinking motives on alcohol use after controlling for the effects of descriptive drinking norms. The four block hierarchical regression model which was run explained 38% of the variance in alcohol use. Drinking motives, particularly enhancement motives, displayed a statistically significant impact on alcohol use adding 11% to the variance. Additionally, age of alcohol use onset, monthly pocket money, age, and gender predicted alcohol use separately.

The results of this study indicate that alcohol use has multi-factorial influences. Of note, the results confirmed the motivational model of alcohol use by indicating that alcohol use is partially motivational and that drinking behaviour is not a unitary phenomenon but instead it represents heterogeneity based on the affective change individuals anticipate to gain by drinking. The high bingeing rate (51%) among this sample may speak to the greater endorsement of enhancement motives, which have been shown in previous studies to be associated with heavy drinking. Enhancement motives are attempts to attain positive affect which, due to the psychoactive properties of alcohol, require greater consumption and intoxication. Additionally, as a result of the greater quantities of alcohol, individuals who drink for enhancement motives would be more prone to alcohol consequences.

The results suggest that a multi-level intervention framework targeting individual students, the university community, and the surrounding community, is indicated. Furthermore, intervention may be tailored-made to address specific drinking motives.

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1. Introduction and Literature Review

1.1 Overview of Study

Alcohol use in South Africa is a social and clinical reality with direct physiological consequences and indirect ramifications. The annual pure alcohol per capita consumption in the country was estimated at 11.0 litres which was among the highest rates in the world (WHO, 2014). Furthermore, alcohol was the most abused substance in substance abuse treatment sites across in all but three South African provinces (South African Community Epidemiology Network on Drug Use, SACENDU, 2014), with estimates of adult alcohol abuse and dependence hovering at 7%-11% and 2.3%-15%, respectively (Herman et al., 2009; Kleintjes et al., 2006). These findings regarding alcohol have attracted public and government attention. Currently, Government's plan to ban alcohol advertising as a means of reducing alcohol use and consequences has been met with support from some and disapproval from others. It is against the backdrop of these on-going debates which aspire to understand and address alcohol use that this study investigated the reasons for alcohol use as reported by the users.

The objective of this study was to focus on a subset of alcohol users: university students. International accounts of university student populations have found alcohol use to be a highly prevalent phenomenon (Karam, Kypri, & Salamoun, 2007). Studies have found that recent cohorts of students were using alcohol more than previous cohorts, suggesting that alcohol use amongst students is increasing (Boland et al., 2006; Karam, Maalouf, & Ghandour, 2004). A relatively stable rate of 44.4% of student binge drinking - which was defined as the consumption of five or more drinks in one sitting for males and four or more for females- has been found in a study involving 119 American universities over eight years (Wechsler et al., 2002). Starkly, 91% of the total amount of alcohol consumed in these

universities was attributed to about 44 % of the student population (Wechsler, Molnar, Davenport, & Baer, 1999). African universities are also faced with students' excessive alcohol use together with related consequences like engaging in unprotected sex (Atwoli, Mungla, Ndung'u, Kinoti, & Ogot, 2011). Nationally, up to 75% of university students in South Africa use alcohol (Nkhoma & Maforah, 1994) and about 49 % are abusing it (Kyei & Ramagoma, 2013). As a result many South African universities, for example, Rhodes University, have strived to understand and address their students' drinking culture (Young & de Klerk, 2008). Excessive alcohol use compromises students' academic performance and health which consequently threatens the calibre of graduates produced who are intended to be the propellers of the country's economy and development. Thus, paying attention to university students' drinking may mitigate undesired consequences for the socio-economic development of South Africa.

It was found by Young and Mayson (2010) and Young and de Klerk (2008) that half of Rhodes University students used alcohol at levels of at least hazardous consumption, that is, use that increased harmful effects of alcohol to self and others (Bador, Higgins-Biddle, Saunders & Monteiro, 2001). More specifically, the following variables accounted for 41% of the variance in alcohol use: sex, age, race, nationality, pocket money available, religiosity, age of first alcohol use- and students' tendency to overestimate the descriptive drinking norms, that is, students' perception of their same sex peers' alcohol consumption patterns (Young & de Klerk, 2012). The descriptive drinking norm estimates alone uniquely accounted for 9% of the variance, a phenomenon which is consistent with research elsewhere in the world (Halim, Hasking, & Allen, 2012). Although this is significant, these findings prompt exploration of what other variables might explain the unaccounted variance. Studies elsewhere in the world have shown that drinking motives are variables that add to the understanding of alcohol use even over and above descriptive norms.

Working with an Asian-Australian university student sample, Halim et al. (2012) found that drinking for social motives accounted for an additional 19% in alcohol use variance over and above descriptive drinking norms and injunctive drinking norms –that is, perceived approval for drinking. Furthermore, the effects of overestimated descriptive norms on alcohol use have been found to be stronger among American college students who perceived their friends as approving of alcohol use but only if the students drank for social reasons (Lee, Markman, Lewis, Neighbors, & Larimer, 2007).

In light of the above findings, this study aimed to explore the role played by drinking motives in influencing alcohol use among Rhodes University students to add to Young and de Klerk's (2012) findings. This study was situated in the growing body of literature providing clarity to the understanding of alcohol use by focusing on the reasons individuals give for their alcohol use. Such studies posit that alcohol use can best be explained by the alcohol users by asking them to introspect and self-report (Carpenter & Hasin, 1998). Such research has been carried out in American contexts (Merrill & Read, 2010; Read, Wood, Kahler, Maddock, & Palfai 2003; Dow & Kelly, 2013; Patrick, et al., 2011) and European contexts (Crutzen, Kuntsche, & Scheleman-Offermans, 2012; Crutzen & Giabbanelli, 2014), with little known about the African – and in particular the South African university context. Only one study (Peltzer, 2003) using a South African university sample was found. However, the South African study only involved black, first year university students, and thus makes generalisations to other students of different cultures and at different levels of study difficult. Evidence of cross-cultural variations in endorsement of different motives (Németh et al., 2011), warrants additional investigation of drinking motives in a diverse South African context to add to Peltzer's (2003) work. For example, Gire's (2002) cross-cultural comparison of American and Nigerian students found that the former were more likely to use alcohol for coping motives whilst the latter were more likely to drink for social motives.

Thus, this study sought to understand possibly unique drinking motives among a culturally diverse and representative sample of university students in South Africa.

To accurately situate this study a review of pertinent findings on drinking in universities is provided.

1.2 Alcohol on Campuses

University attendance is becoming a global feature as evidenced by the growing admission rates. In developed countries it was estimated that one in two young adults were admitted into university (Organisation for Economic Co-operation and Development, OECD, 2014). Although the South African figures are not as high as developed countries, the number of youth enrolling in universities - 900 000 - has been steadily growing and Government plans to have 1.6 million students enrolled into university by 2030 (Department of Higher Education Training, 2013). Within these emerging international and national university contexts, alcohol use has been found to be a part of the university culture.

Although being in university does not certainly equate to using alcohol, studies have found that university students consume more alcohol compared to their non-university peers (Slutske, 2005; Schulenberg & Patrick, 2012). For example, a survey with New Zealand university students found the prevalence of hazardous use (65% versus 36%) and harmful use (31% versus 9%) of alcohol to be greater among students compared to their non-student peers, respectively (Kypri, Cronin, & Wright, 2005). Additionally, data pooled from the Monitoring the Future studies in the USA has provided a developmental trend of alcohol use among university students and non-university peers which showed that university students consumed more alcohol than their non-student peers across a five year period (Schulenberg & Patrick, 2012). The data further showed that once students left university (for example,

because of dropping out early or even completing their studies) their level of alcohol use dropped significantly and was lower than those who remained in university.

These findings suggest the existence of a university drinking culture which is influenced by characteristics of university life which may not be shared by non-university students. Some factors found to enable a drinking culture in university include: decrease in supervision and living arrangements (Boot, Rosiers, Miejsman, & van Hal, 2010), disposal income for alcohol (Young & de Klerk, 2012), and a student culture that privileges alcohol use, for example through university societies (Lorant, Nicaise, Soto, & d'Hoore, 2013). Thus, a university drinking culture has emerged although it is different across universities (Weschler et al., 2002). Adam, Welch, Pendlebury and Merritt (2000, p. vi, as cited in McEwan, 2009) posited that: "Universities possess an identifiable culture.... Drinking is viewed as an intrinsic aspect of this culture and is often presented as a more defining feature of being a student than academic work."

Although not all studies definitively agree on which students use alcohol and at what use patterns, there are relatively stable findings across studies. For example, a review of 65 studies with European universities found that male students from better-off socio-economic backgrounds who were less religiously affiliated were more likely to drink (Wicki, Kuntsche, & Gmel, 2010). Below are some of those findings grouped in terms of macro or micro levels. Macro factors are discussed first and gradually the discussion will narrow onto the individual to discuss micro factors.

1.3 Macro factors

1.3.1 Community surrounding university. Although university life has distinct features and characteristics, it exists within a larger socioeconomic context which has bearing on alcohol use. The influence of other environmental factors outside the confines of the university have been found to be related to students' drinking. Weitzman, Folkman, Folkman, and Wechsler (2003) found that alcohol outlet density within a 2 mile radius from campuses or central location points was strongly correlated ($r=.82$) to students' heavy drinking, particularly for male students. Additionally, outlet density was strongly correlated with drinking problems, particularly among female students ($r= .90$).

Although most studies corroborate this latter finding, a study involving participants from one USA state found that higher alcohol outlet density was not related to increased alcohol use among older populations (Shimotsu et al., 2013). This suggests that students, generally young, are more prone to influences of greater availability of alcohol compared to older populations. Although Weitzman et al.'s (2003) study was cross-sectional they were inclined to suggest that outlet density was more likely to have led to student alcohol use not vice versa, particularly since outlet density was more related to populations generally less committed or interested in alcohol use like females. These outlets not only make alcohol available but through promotions and specials they are strongly associated with student binge drinking, particularly among female students who are generally less likely to actively seek heavy alcohol use (Wechsler et al., 2000).

1.3.2. University alcohol policy. Due to the negative consequences of alcohol use on drinking and non-drinking students, and the university at large, efforts by universities to put in alcohol policies have been made. Even among adolescent populations, the existence of local community regulations against alcohol use has been related to lowered levels of alcohol

use (Paschall, Lipperman-Kreda, & Grube, 2014). However, the estimated increase of illegal alcohol use during the latter part of the Prohibition in the 1920-30s in the USA reminds us that the existence of regulations does not equate to reduction in use (Miron & Zwiebel, 1991). In fact, it has been found that although over 80% of university students may be aware of campus alcohol policies, less than 50% of them accepted the policies (Marshall, Roberts, Donnelly, & Rutledge, 2011) with lower support for enforcement policies, for example, those requiring proof of age when in drinking venues (Saltz, 2007). Such findings have fueled the already existing view that the effectiveness of such policy will be undermined by students' disapproval. Furthermore, students generally underestimate their peers' approval of such policies despite their peers' higher approval (Saltz, 2007). Such an underestimation is parallel to findings indicating that students generally overestimate their peers' drinking (Young & de Klerk, 2012) with such an overestimation leading students to believe that their over-drinking peers will not approve of alcohol policy (Saltz, 2007). Nevertheless, some universities have achieved success in reducing their students' drinking through alcohol policies. For example, campus alcohol bans appear to strongly deter non-drinkers from drinking but the bans have a limited impact on heavy alcohol users (Chaloupka & Wechsler, 1996). In addition, policy dictating restriction of alcohol on residences has also been associated with reduced alcohol-related problems for the students and their non-drinking peers who would often encounter so-called second-hand effects of alcohol use (Wechsler, Lee, Nelson, & Lee, 2001). From the above studies it appears that multi-level policies with the support of students are likely to improve the effectiveness of interventions.

1.3.3 Living arrangements. University living arrangements are physical environments that harbour distinct alcohol use patterns. Where students live has been found to be an important variable in understanding their alcohol use (Wechsler & Nelson, 2008). Generally, living in campus residence with other students or living off campus with other

students is related to increased alcohol use (Sharmer, 2005; Wechsler & Nelson, 2008; Young & de Klerk, 2008). Living arrangement has been of particular concern in the USA where a “Greek system” prevails. This system encompasses fraternity and sorority affiliation and housing systems. Students affiliated to fraternities and sororities have been found more likely to be binge drinkers (Park, Sher, & Krull, 2009) and more likely to engage in drinking games (Sharmer, 2005) than those not affiliated to them. In fact, affiliates of sororities (females) were more likely to binge drink compared to male students not affiliated to fraternities (Park et al., 2009), an interesting finding given that males generally drink more than females (Kuntsche, Knibbe, Gmel, & Engels, 2005).

However, an additive variance of actual residing in fraternities and sororities housing over and above affiliation has been found showing that the shared physical space is an important variable (Park et al., 2009). This finding is relevant for non-USA universities where such Greek systems and their underlying traditions do not exist, as is the case in South Africa. Although such a Greek system does not exist in South Africa, available research suggests that students living in residences with limited supervision and who share dormitories and off campus accommodation with numerous other students are likely to engage in heavy alcohol use than those living with family and guardians (Sharmer, 2005). However, before attributing causality to the living environments in university, Park et al.’s (2009) findings warn us that students’ pre-university drinking predicts their choice of residence, with university bound students choosing arrangements that favour their drinking lifestyle, where, for example, heavy drinkers may opt for off campus accommodation or Greek systems. This suggests that university living arrangement may also merely support the already existing drinking dispositions of students. Additionally, this also suggests that universities that are known for their drinking cultures, like Rhodes University (Young & de Klerk, 2008), are perhaps more likely to be the choice for drinkers.

1.4 Micro Variables

1.4.1 Gender. Male students are more likely to use alcohol, to use it more frequently, and use it at high volumes than female students. Such a gender trend is apparent not only internationally (van Damme et al., 2013) but also in South Africa (Kyei & Ramagoma, 2013; Young & Mayson, 2010; Young & de Klerk, 2012). This gender trend may be a function of biological mechanisms and may also be socially influenced. Males have been found to be less sensitive to effects of alcohol compared to females which means that males are more likely to consume alcohol at higher volumes and at greater frequency (International Centre for Alcohol Policy, ICAP, 2001). The most cited influences have been that females have less body water compared to males of similar weight thus achieve greater blood alcohol concentration (Frezza, di Padova, Terpin, Baraona, & Lieber, 1990) and females have lesser activity of alcohol dehydrogenase, the enzyme that metabolises ethanol (Baraona et al., 2001). Socially, conceptions of traditional masculinity were also found to influence greater drinking among men (Uy, Massoth, & Gottdiener, 2013). A path analysis model by Uy et al. (2013) found that endorsement of greater traditional norms of masculinity (for example, men should not express emotions) and greater gender role conflict was more likely to predict alcohol use and problems among male drinkers.

1.4.2. Race. The issue of race in post-apartheid South Africa is controversial¹. Numerous findings of the association of race with alcohol use (Peralta & Steele, 2009; Young & Mayson, 2010; Young & de Klerk, 2012) point out that white students consume significantly more than other races or ethnicities. Although bearing in mind that experiences and construction of race may be different in the USA and South Africa, a recent USA study

¹ Although race is a social reality for most South Africans and it continues to predict life opportunities (Bowman, Seedat, Duncan & Burrows, 2006), the author of this thesis does not subscribe to the racial ideology on which these categories were based.

on racial disparities in respect of alcohol use is important to note. Fesahazion, Thorpe, Bell, and LaVeist (2012) found that racial disparities in alcohol use may be better explained not by race per se but by the socio-cultural and economic variables associated with race. They compared alcohol use among black and non-Hispanic white participants living in a low income racially integrated community without race differences in socioeconomic status and found that both races had similar odds to be current drinkers (OR= .94, 95%, CI=.67-1.33) and binge drinkers (OR= .90, 95%, CI=.60-1.37). However, in a sample of differing socioeconomic status, a race difference was found. In the South African studies which found race differences in alcohol use there were additional race differences in monthly income (Young & Mayson, 2010; Young & de Klerk, 2012), an economic variable already found to predict the odds of alcohol use and consequences (Dantzer, Wardle, Fuller, Pampalone, & Steptoe, 2006). Furthermore, research from the USA points out that harmful drinking by white students was greatly related to their involvement in social environments that privilege drinking, like fraternities and sororities (Ham & Hope, 2003). Thus, caution seems warranted in using race as an inherent predictor of alcohol use.

1.4.3 Age of onset. The age of onset of alcohol consumption is a variable found to influence alcohol use patterns and even predict the occurrence of alcohol abuse and dependence among university students. Reavley, Jorm, McCann and Lubman (2011) found that a younger age of first alcohol consumption and intoxication was related with medium to high risk of alcohol consumption among Australian tertiary students. Similarly, a logistic regression analysis by DeWit, Edward, Adlaf, Offord, and Ogborne (2000) found that the odds of alcohol abuse and dependence were higher among those who began using alcohol at age 11-14 compared to those who started drinking at 19 years or older. From DeWit et al.'s (2000) study it is worthwhile to note that the alcohol use disorders manifested significantly more after 6 – 8 years of starting to drink alcohol. Given that university attendance generally

occurs during that time, there is a possibility that a university drinking culture acts on the students' drinking patterns and renders them more likely to develop alcohol use disorders. However, the effect of early alcohol use on later alcohol abuse has also been found among post-secondary students bound for university but not yet in university (Bergen-Cico & Lape, 2013). These findings suggest that although the presence of alcohol use disorders may increase in university among earlier users this is probably an insidious course with origins even before university.

The mechanisms of how early adolescent alcohol use predicts later adult alcohol problems remains largely unknown (Guttmanova, et al., 2012; Mason, et al., 2011). In Guttmanova et al.'s (2012) longitudinal study following Seattle participants from the ages of 10 years to 33 years they tested three hypotheses. Firstly, a marker hypothesis which posits that early alcohol use may be a marker for other variables related to both early use and alcohol dependence but which when controlled would render the relationship between early use and dependence insignificant. Secondly, a compromised development hypothesis which argues that early use impacts on significant developmental trajectories which are subsequently associated with alcohol dependence. Thirdly, an increased substance use hypothesis which suggests that early use leads to increase in alcohol and other substance use which predicts alcohol dependence. None of the hypotheses were retained but it was found that preadolescent alcohol use, impaired developmental trajectories (17-27% prediction) and increased substance use (24.7% prediction) predicted alcohol dependence independent of each other and not as linearly hypothesized.

1.4.4 Faculty and level of study. In university settings alcohol consumption rates across faculties suggests that students in certain programmes use alcohol more than others. For example, medical and pharmacy students have been found to use alcohol less, at lesser frequency and lesser risky single occasion drinking (Bullock, 2004; Young & de Klerk,

2008). Suggestions of these inter-faculty differences involve demands of the fields of study and even knowledge of the effects of alcohol consumption (Danzter et al., 2006). However, Wicki et al. (2010) warn that many confounding variables limit making conclusions about differences in drinking across faculties. For example, greater enrolment by students of Islamic faith - which strictly discourages alcohol consumption- into medical and pharmacy fields may act as a confound.

It is unclear whether there is a difference in alcohol use among students in lower levels compared to those in higher levels. Some studies have found that alcohol consumption tends to decrease with progression into higher levels of study (Bewick et al., 2008), while others found no difference (Bullock, 2004). Developmental research on alcohol use has found a trend in which binge drinking among students increased from 1.4 episodes at the start of college to about 2.2 episodes at midway and declined to about 2 episodes at the end of college (Schulenberg & Patrick, 2012). Differences could be a result of increased demands of study limiting frequency of use and its volume. Furthermore, maturity could also be implicated.

1.4.5. Affluence. Higher income earners in the general population consume alcohol at higher volumes (Cook, Tocque, Morleo, & Bellis, 2007), and the same is true for university students, with such an income being further related to exposure to increased alcohol consequences (Harrell, Huang, & Kepler, 2013; Refaat, 2004; Young & de Klerk, 2012). Some studies operationalise income as family income or student disposal income but it has been found that students' reports of their own disposal monthly income instead of family income is more strongly associated with alcohol use and alcohol consequences (Harrell, Huang, & Kepler, 2013; Martin et al., 2009). This makes sense because although family income may be distributed to the students, what the students end up with as their disposal income may be different to the amount available to their families. Furthermore, in the South

African context where many family incomes can be very low, students from such families may be beneficiaries of scholarships and bursaries which may lead to students having more money at their disposal than their family income would suggest. Taking students' monthly income as a variable of study, Martin et al. (2009) found that increases across income brackets was accompanied by an increase in the odds for alcohol use (with those with \$500 or more monthly nearly three times more likely to have been drunk in the past seven days compared to those with an income of \$100 or less) and increased consequences to self and others. Although more money seems to be related to alcohol use and consequences, there is a possibility that due to limited money some students may explore different ways to heighten their intoxication. For example, there is a growing trend of university students' mixing energy drinks with alcohol (Marczinski, Fillmore, Henges, Ramsey, & Young, 2013) and 'pre-party' drinking in which students buy, generally cheaper, alcoholic beverages and consume in larger quantities before going out to settings where alcohol is more expensive (Kuntsche & Labhart, 2013). Despite such possibilities of pre-party drinking, monthly income may still give an indication of how much students will drink and the likely consequences.

The above research succeeds in showing who is likely to use alcohol. As illuminating as such research is it is limited in drawing out why the individual uses alcohol. The variables explored in the research cited above may at best be viewed as associated factors that predispose an interaction between the individual and the alcoholic beverage. Although noting the socio-environmental factors of alcohol use, the philosophical inclination of this study includes appraising the behaviour as involving decision making. Thus, the individual's drinking motives are an important variable in shedding light into his or her alcohol use. Already established, and in line with these philosophical hypotheses, is research following the motivational model of alcohol use (Cox & Klinger, 1988). This approach places drinking

motives as the nexus connecting constitutional and socio-environmental factors to alcohol use. A discussion of the motivational model of alcohol use now follows.

1.5 Motivational Model of Alcohol Use

1.5.1 Theoretical underpinnings. Cox and Klinger's (1988) motivational model of alcohol use formulates alcohol use as 'ultimately' predicted by an individual's expected and desired affective change resulting from using alcohol. Two key concepts – incentive motivation and affective change- are important in understanding this model. Incentive motivation is defined as "an organism's motivation to pursue incentives: positive incentives to which it is attracted and negative incentives by which it is repelled" (Cox & Klinger, 1988, p. 169). According to the model, alcohol use cannot be merely appraised from a drive reduction perspective which supposes that drinking behaviour is driven by just physiological needs that demand fulfilment to lead to reduced tension and the achievement of homeostasis. Even in the absence of such drives, for example 'cravings', certain behaviours are expressed because a desired incentive is sought after. This incentive is in the form of affective change, which Cox and Klinger (1988, p.169) defined as "a change in affect from its current state- a change that may be either quantitative or qualitative in nature." This change can be a direct physiological effect of alcohol or non-chemical effect of using alcohol. It is these expected and valued affective changes that either lead to drinking or not drinking.

Expectancy research has found that 50% of the variance in alcohol use may be attributable to the expectations that individuals have about alcohol (Reich & Goldman, 2012). However, the expected changes should be considered desirable by the individual for action towards alcohol use to be initiated (Cooper, 1994). Thus, a motivational model may be seen as additive to the expectancy theories in that the expected affective changes need to be desired by the individual. This additive effect has been supported empirically by Cooper,

Frone, Russell, and Mudar (1995) whose regression and path analyses of data from US adolescents and adults revealed that drinking motives mediated the relationship between expectancy and alcohol use and drinking problems. Therefore, drinking motives are seen as proximal predictors of use because the motives represent the individual's desired expectancy from using alcohol – whether chemically or non-chemically induced effects, such as peer approval (Cox & Klinger, 1988).

Accounting for individual differences in alcohol use the model posits that such individual differences occur based on which expectancies are desired. Therefore, the behaviour of drinking alcohol represents distinct phenomenological experiences for the users (Cooper et al., 1995). Drawing from the model, Cooper (1994) deduced four drinking motives: (a) enhancement motives, that is, drinking to feel good, (b) social motives, that is, drinking to do well in social settings, (c) coping motives, that is, drinking to reduce internal distress, and (d) conformity motives, that is, drinking to reduce alienation by peers. These motives have a common goal of affective change (Cox & Klinger, 1988) but the source and the nature of the change differentiates them (Cooper, 2004; Kuntsche, Knibbe, Gmel, & Engels, 2005). Thus, although affective change may be viewed as an internal subjective experience, the source of this change can be internal or external. The nature of the change can be characterised as positive and negative in line with operant conditioning characterisations of positive meaning attaining a desired reward and negative meaning removing an undesired stimuli (King, 2013). A tabular representation of the motives is shown in Table 1.1.

Table 1.1

Delineating Drinking Motives by their Source and Valence

Nature of Valence	Source	
	Internal	External
Positive ^a	Enhancement	Social
Negative ^b	Coping	Conformity

Note. ^aPositive in the operant conditioning parlance to indicate attaining a desired stimuli.

^bNegative to indicate removing an undesired stimuli

Individuals who drink for enhancement motives may be characterised as attaining an internal betterment of wellbeing, whereas those who drink for social motives attain improvement in social adjustment to others. Similarly, drinking for coping motives may be viewed as an attempt to remove undesired stimuli experienced within the individual, while conformity motives may be viewed as a removal of social pressure upon the individual. Given these varied reasons for drinking, proponents of the motivational model have emphasised: “drinking behaviour is not a unitary phenomenon but instead represents multiple psychologically distinct behaviours defined by the different underlying functions they serve” (Cooper et al., 1995, p. 990). The complexity of drinking behaviour is further compounded by the fact that individuals often endorse various reasons from various motive categories (Kuntsche et al., 2005). That is, one individual may drink for social, coping and enhancement reasons depending probably on the context and situation at hand. Thus, drinking motives may be seen as fluid constructs.

In a review of 15 years’ worth of research on the motivational model, Kuntsche et al. (2005) highlighted important points which enable the understanding of drinking motives. Firstly, they clarified that reasons for use are specific units which fall under general motive

categories- for example, drinking to help yourself to enjoy a party (a reason) combines with other similar reasons to make up a broad social motive category. Secondly, they pointed out that heterogeneity in the measurement of drinking motives makes it difficult to make comparisons between studies. Lastly, they pointed out that most of the research, four out of five studies, was carried out in North America. These findings suggest that there is room for further research in non-North American populations using a common and psychometrically sound instrument which can measure specific reasons and broad motives.

With the theoretical underpinnings discussed, a review of the literature regarding drinking motives follows.

1.5.2 Reasons for alcohol use.

1.5.2.1 Overview. Kuntsche, Knibbe, Gmel and Engels (2005) found that social motives were frequently endorsed among adolescents and young adults. Social motives were followed by enhancement motives then coping motives. This order in endorsement has also been corroborated extensively (Crutzen, Kuntsche, & Schelleman-Offermans, 2013; Patrick, et al., 2011; Peltzer, 2003). Generally, it has been found that males endorse more social and enhancement motives compared to females, whereas younger females are more likely to endorse coping motives than their male counterparts but after ages 22-23 males have been found to endorse coping motives more than their female counterparts (Kuntsche, Knibbe, Gmel, & Engels, 2006). With that general introduction, a specific exploration of the individual motives follows.

1.5.2.2 Social motives. The dominance of social motives is apparent among university students and probably confirms the widely-held belief that alcohol is a 'social lubricant'. A context whose social interactions encourage drinking is likely to have members of that context drinking for social reasons and at levels dictated by that social context (van Damme

et al., 2013). University life is characterised by numerous social groups in which students may find themselves in, thus it does not seem surprising that as many as 72.4% of drinkers reported drinking for social reasons (van Damme et al., 2013). Although the end goal would be to function better in social interactions the research suggests that social gains are limited. In a study with first year US college students, Grant, Brown, and Merono (2013) found that although students drank for social reasons their drinking did not translate in forming new relationships- either casual or close. Although Grant et al.'s (2013) regression analysis pointed out that social motives accounted for 38% of the variance in students' drinking, there was no statistically significant relationship between students' drinking and the formation of new relationships. Thus, although their motivation led to alcohol use, this alcohol use did not translate to the desired expectancy. Other studies (Balsa, Homer, French & Norton, 2011; Tucker et al., 2011) on high school students have however, found drinking to be related to other social outcomes like popularity. Grant et al. (2013) argue that using the establishment of new relationships as a measure of social benefits was apt in light of the fact that making new friends may be priority for students just arriving to a new life of university. However, their operationalisation of social benefits in terms of new relationships formed may be too narrow and based on an unproven assumption that their participants did not have friends already. Freshmen may have already established relationships for which their drinking may be geared towards maintaining those relationships instead of making new friends. An additional variable of establishing the quality of existing relationships could have been beneficial. Such a variable could also have utility for other non-first year students. Thus, it would be too early to rule out that indeed students are attaining social benefits from their drinking which could further motivate their expectancy of social rewards as a result of drinking. In fact, university student drinking also peaks during the second and third year

(Schulenburg & Patrick, 2012) where presumably friendships have been formed and drinking could be related to enjoying those relationships.

1.5.2.2.1 Social motives and alcohol use. Despite the inconclusiveness of drinking behaviour being related to social benefits among those drinking for social reasons, the consistent finding is that the current endorsement of social motives nevertheless predicts current alcohol use (Cooper, 1994; Kuntsche et al., 2006). Read et al. (2003) found that although present in a cross-sectional analysis, the predictive power of social motives on alcohol use was removed in a longitudinal analysis. They found that endorsement of social motives did not predict alcohol use after a year among second year students, thus bringing into question the validity of the motivational model in describing motives as the proximal predictors of alcohol use. Although showing this limitation in the motivational model, these findings possibly highlight the significance of the model in that the model essentially views motives as fluid and dynamic (Cooper, 1994; Cooper et al., 1995; Cox & Klinger, 1988). Read et al.'s (2003) study supposes that drinking motives are relatively static in that one's motives today will be the same a year from now and have a similar impact in the future as they do currently. Crutzen, Kuntsche, and Schelleman-Offermans (2013) have shown that drinking motives evolve over time, even in three months, and influence each other. Crutzen et al. (2013, p. 200) offer this explanation: "the influence of drinking motives on each other over time might possibly reflect different event-level drinking contexts." Absent from Read et al.'s (2003) analysis was the inclusion of drinking motives on the second wave (after a year) and comparing these motives to previously endorsed motives. It is possible that someone who drank for social reasons one year did not drink for those reasons the next year (or at equivalent levels). Thus, the reduced drinking levels would not be associated with the previously endorsed social drinking motives. Therefore, exploring changes in motives over times seems important to consider.

In addition to the above studies there have been others which have explored, cross-sectionally, the relationship between social motives and categories or levels of alcohol use. Kuntsche et al.'s review (2005, p. 851) concluded that "social motives are associated with moderate drinking in most studies". However, van Damme et al.'s (2013) logistical analysis with Belgian students found endorsement of social motives to increase the likelihood of heavy alcohol use. They suggested that the effect of social motives in influencing heavy drinking and alcohol problems depends on the particular drinking context. For example, drinking to enjoy a meal with friends or family would be different from drinking to enjoy a party despite both being social reasons. It is the latter group that is anticipated to be exposed to alcohol related problems and heavy drinking. Therefore the exact social context needs to be considered in understanding the level of drinking.

1.5.2.2 Social motives and alcohol consequences. Available research suggests that individuals that endorse social motives do not significantly experience alcohol related problems (Cooper, 1994; Read et al., 2003). Although moderate to heavy drinking may be present, it appears that social drinkers are less likely to suffer adverse consequences as a result of their drinking compared to other drinkers. It could be that members of the social groupings in which individuals drink could 'look' out for each other. However, the concept of 'risky shift' supposes that when in groups, individuals are more likely to take riskier decisions than when alone (King, 2013; Myers 2008). Therefore, one could have conversely expected more risky behaviour like drunk driving and motor vehicle accidents.

1.5.2.3 Enhancement motives. Enhancement motives form what has been classified as dispositional motives given that the expected affective change is anticipated to be the direct effect of alcohol and is self-directed (Piasecki et al., 2014). As already discussed regarding social motives, it is worth exploring whether the anticipated gains of alcohol use are actually attained. Piasecki et al. (2014) explored this on a sample of 393 community

drinkers during a 21 day Ecological Momentary Assessment in which participants reported perceived drinking effects subsequent to their immediate drinking episodes through a digital diary. The diary sent up to five random timed prompts a day enquiring whether participants had drunk or not in the past hour. If affirmed, participants' drinking episodes would be tracked and they would be asked to rate how pleasurable, relieving or worsening of negative affect their drinks were. It was found that a one-point increase in enhancement motives was significantly associated with a .18 point increase in experiencing drinking pleasure on a 1-5 scale. Thus, those who endorsed more enhancement reasons experienced enhancement of pleasurable states. Furthermore, although noting the limitations of using estimated Blood Alcohol Concentrates (eBAC) to operationalise the physiological quantity of alcohol in the body, the study found that eBAC was not significantly related to feelings of pleasure or relief. This finding suggests a psychological mechanism (expectancy) was at play in influencing affect rather than the direct physiological effects of alcohol. Addressing the implication of their finding, Piasecki et al. (2014) concluded: "the analyses cannot determine the extent to which drink appraisal ratings are attributable to pharmacologic effects of alcohol versus expectancies. In theory, alcohol effects observed under natural conditions are likely to represent a mixture of these influences" (p. 367). With that context in mind, we can now consider the relationship between enhancement motives and alcohol use and consequences.

1.5.2.3.1 Enhancement motives and alcohol use. Enhancement motives appear consistently endorsed by heavy drinkers, and have the strongest predictive power of alcohol abuse compared to other motives (Cooper, 1994; Kutsche et al., 2005; Mezquita et al., 2011). Carey (1993) found that heavy drinkers (seven drinks or more) significantly endorsed enhancement motives (M= 3.03) compared to light (M=2.09) and moderate (M=2.61) drinkers. What seemed to be particularly telling is the drinking "to get high" reason (Cooper, 1994) which occurs as "drinking to get drunk" in other scales (McCabe, 2002). This item

alone has discriminatory power to distinguish moderate drinkers from heavy drinkers (Billingham, Parrillo, & Gross, 1993; Feldman, Harvey, Holowaty, & Shortt, 1999). Viewing enhancement motives on a continuum seems helpful to make meaning of how this specific item may be related to heavy alcohol use. At one end of the spectrum is an item like drinking “because it gives you a pleasant feeling” which suggests a mild-moderate enhancement of affect compared to, on the further end, “drinking to get drunk” which suggests a profound enhancement of affect leading to a completely altered state. Possibly the further you go down the spectrum in the direction of the latter, heavy alcohol use is more likely as has been documented. However, enhancement motives do not seem to predict the quantity of alcohol use after three months but instead predict the frequency of alcohol use (Crutzen, Kuntsche, & Schelleman-Offermans, 2013).

1.5.2.3.2 Enhancement motives and alcohol consequences. There appears to be a relationship between enhancement motives and alcohol related consequences. Cooper’s (1994) early findings of this relationship have been upheld in subsequent studies (notably Read et al., 2003) wherein the enhancement motives influence alcohol related problems due to their relationship with alcohol use. Once the effects of demographic covariates and alcohol use were controlled, enhancement motives did not have a significant relationship with alcohol consequences (Cooper, 1994). Read et al. (2003) confirmed this finding by showing that enhancement motives did not directly predict alcohol consequences but instead the effects of enhancement motives were mediated by alcohol use. However, a structural equation model found that greater endorsement of enhancement motives was positively related to experiencing alcohol induced disruptions in conscious awareness and memory loss, that is “blackouts” (Merrill & Read, 2010). The following explanation has been offered for the latter finding:“(p)erhaps enhancement drinkers, seeking alcohol’s positively reinforcing effects, drink faster or in larger sips, and not simply in larger overall quantities- the result being more

frequent blackouts” (Merrill & Read, 2010, p. 709). Given this temporary loss of awareness and memory, it could be anticipated that such drinkers would be vulnerable to being victims; such as being robbed or sexually assaulted for example.

1.5.2.4 Coping motives. Just like enhancement motives, coping motives are viewed as dispositional because the affective change resulting from alcohol use is anticipated to be due to the direct physiological effects of alcohol. Similar to effects of enhancement motives on perceived affect enhancement, greater endorsement of coping motives was significantly associated with perceived relief when drinking (Piasecki et al., 2014). In fact, the effect of the association between coping motives and perceived relief was greater compared to the association between enhancement motive. A 1 point increase in coping motives equalled a .42 increase in a relief measure on a 1-5 scale. However, coping drinkers also experienced feeling worse after drinking episodes. The dual experience of reduction and increase in negative affect possibly reflects the time limited effects of alcohol in coping with distress and which leaves the underlying problem unchanged and persisting (Cooper et al., 1995; Crutzen et al., 2013). Research has shown that those that drink to cope with distress compared to enhancement and social drinkers had a significant treatment response with reduction in alcohol use following psychological intervention, suggesting that the underlying distress was approached and handled instead of avoided (Dow & Kelly, 2013). This motive of drinking to cope with distress may predispose users to increased alcohol use and consequences which are now discussed below.

1.5.2.4.1 Coping motives and alcohol use. To deal with distress, it appears that heavy alcohol use is needed. Coping motives are associated with heavy drinking (Kutsche et al., 2005). Initially, research on coping motives found this variable to uniquely account for alcohol use among adolescents (13-19 years) and adults (Cooper, 1994; Cooper et al., 1995). However, some recent studies, notably Read et al. (2003), have found no association between

coping motives and alcohol use among university students in cross-sectional and longitudinal analyses. Read et al.'s (2003) two sets of nested structural models revealed no significant association between coping motives and alcohol use, prompting them to surmise that social and enhancement motives may be more salient predictors of student drinking. The uniqueness of the poor predictive power of coping motives among university students may speak to the observed differences among university students and the rest of the populations like older adults, on whom it has been found that coping motives significantly predict quantity and frequency of alcohol use (Crutzen et al., 2013). In fact, a longitudinal study spanning 12 years by Patrick and Schulenberg (2011) found that coping reasons decreased during the ages of 18-22 but was the only motive related to binge drinking when participants became older (22-30). The prominence of coping motives and their relationship to alcohol use among older adults compared to the younger adults has been posited to reflect the increasing demands of later adulthood and the transitions involved where employment and family obligations may burden many and thus leave them to attempting to cope by using alcohol (Patrick & Schulenburg, 2011).

1.5.2.4.2 Coping motives and alcohol consequences. Despite the evidence suggesting the limited predictive power of coping motives on alcohol use there have been consistent findings affirming the relationship between coping motives and alcohol related problems (Cooper, 1994; Cooper et al., 1995; Read et al., 2003; Merrill & Read, 2010). Coping motives have been found to be the best predictor of alcohol related problems among students (Kuntsche, et al., 2005). Unlike other motives which often effect problems through their relationship via alcohol use, coping motives have been found to directly predict alcohol related problems (Read et al., 2003). The specific problems have been summarised by Merrill and Read (2010) as follows: "Taken together, the observed direct relationships depict the students' drinking to cope with negative affect as one who is struggling across multiple

domains- performing poorly in classes or at work, engaging in risky behaviours that may cause him or her additional problems, and failing to take proper physical care” (p. 708). Based on such findings it does not seem improbable to consider the possible cyclical effect of coping motives on alcohol problems. However, a longitudinal analysis found no association between prior alcohol-related problems and endorsement of coping motives after a year (Read et al., 2003). Nevertheless, given the fluidity of drinking motives (Cox & Klinger, 1988; Cooper, 1994; Cooper et al., 1995) it may be possible that a 12 month follow up is too distant to accurately show the interplay of coping motives and alcohol problems.

1.5.2.5 Conformity motives. Conformity motives were initially not included in the original 1992 Drinking Motive Questionnaire (DMQ) by Cooper. However, her later validation suggested a four factor model to include conformity motives with the other three motives discussed above given the desirable fit (CFI= .94, standardized root mean square residual= .05; Cooper, 1994). Despite this validation, conformity motives have remained relatively neglected even in robust reviews by Kuntsche et al. (2005, 2006). Notwithstanding, the dearth research that does exist on this motive is described below.

1.5.2.5.1 Conformity motives and alcohol use. Among adolescents, conformity motives have been found to have a weak positive relationship with their (adolescents) drinking at parties (Cooper, 1994). However, this motive category is typically unrelated to alcohol use among university students (Merrill & Read, 2010). Even among older adults (50 years) conformity motives do not predict alcohol use (Crutzen et al., 2013). It has been suggested that the role of conformity motives on alcohol use may possibly reflect the trajectory of alcohol use and context. Drawing on available studies, Mezquita et al. (2011) point out that conformity motives are prominent among adolescents who may find themselves coerced into drinking at parties, or among delinquent adolescents, and even among alcohol dependent clinical patients who end up relapsing due to social pressures.

1.5.2.5.2 Conformity and alcohol consequences. From the inaugural studies on drinking motives (Cooper, 1994) conformity motives have been found to be related, albeit weakly, to alcohol related problems. A recent study by Merrill and Read (2010) modelled the relationship between drinking motives and unique types of alcohol consequences and found that although not related to alcohol use, conformity motives had a direct, significant positive relationship with poor self-care, diminished self-perception and impaired control. They offered no interpretation beyond the need to examine this relationship further in research.

1.6 Chapter Conclusion

Alcohol use is a phenomenon with social and clinical relevance. Understanding and addressing it has been a research and clinical imperative within the national agenda and within specific institutions like Rhodes University. Although drinking motives have been documented to influence alcohol use in international contexts less is known about these drinking motives in South Africa. Drinking motives are fluid and dynamic, and represent distinct alcohol use behaviours. Thus, exploring drinking motives among South African university students holds promise to adding to the on-going debates and interventions. This study aimed to do that. What follows immediately is how the study was designed to achieve understanding of drinking motives among Rhodes University students.

2. Methodology

This chapter describes the research questions and the steps taken to answer them. The participants are described alongside considerations of the sample's representativeness to the Rhodes University student population. The sampling procedure is also presented. The measures used to operationalise the variables of interest are described with comments on psychometric properties. Specifically, the Drinking Motives Questionnaire (DMQ; Cooper, 1994), the Alcohol Use Disorder Identification Test (AUDIT; Bador, Higgins-Biddle, Saunders & Monteiro, 2001) and demographic variables are described. The procedures section details the manner in which participants completed the online survey. The data analyses to be computed are described and then issues of ethics are mentioned before concluding.

2.1. Research Aim and Questions

This study had the overall aim of exploring the role of drinking motives on university students' drinking in order to add to the understanding of the mechanisms underlying alcohol use. Specifically, the study sought to answer the following four questions:

- 2.1.1 What is the current alcohol use trend among university students on a South African campus?
- 2.1.2 What factors are associated with alcohol use?
- 2.1.3 Which drinking motives do these university students hold?
- 2.1.4 Which students, as a function of demographic variables, hold particular drinking motives?

2.1.5 Do drinking motives predict alcohol use over and above the effects of the descriptive drinking norms and demographic variables investigated by Young and de Klerk (2012)?

2.2 Participants

The demographic characteristics of the sample are described here because these characteristics have been found to be important participant information in respect to understanding alcohol use.

The demographic characteristics of the participants as presented in Table 2.1 show that the 501 student sample comprised of 319 (62.3%) female students and 193 (37.7%) male students whose mean age was 20.9 years old. A comparison with the student headcount based on a recent institutional digest (Rhodes University, 2013) suggests that the gender proportions are representative of the actual gender distribution ($\chi^2=1.01$ (1), $p=.29$). Over half (54.9%) of the participants describe themselves as black, while 37.5% of the students considered themselves white, with 3.2 % Indian, 2.6 % coloured and 1.6 % regarded themselves to be neither of the above. When compared with the approximate student headcount, these proportions are consistent with the expected distributions ($\chi^2= 5.739$ (1), $p = .12$).

Level of study among participants had a declining representation from Year 1 (30.1%) to PhD (3%). A comparison with the approximate numbers of undergraduates and postgraduates indicates that there was a slight oversampling (by 20) of undergraduates ($\chi^2= 4.692$ (1), $p = .03$).

In terms of residences, 65.1% of the students lived in university residences, while 31.5% lived in digs², and 2.8% lived with parents or guardians. Three students did not indicate where they lived.

The majority of the students had less than R1500 as monthly pocket money. Of the sample, 86.9% had consumed alcohol at some point in their lives, and a majority (68.5%; n=343) considered themselves to be current drinkers. Majority (69.5%) of the participants became first intoxicated with alcohol between the ages of 15-18, while early onset drinkers (younger than 15 years old) accounted for 10.8% of the whole sample or 16.5% of the drinking sample

Table 2.1: Demographic Characteristics of Participants (n=501)

Demographic Characteristic	N	(%)
Gender		
Female	312	62.3%
Male	189	37.7%
Age		
Mean	20.9	
SD	2.84	
Year of Academic Study		
First Year	150	29.9
Second Year	121	24.2
Third Year	114	22.8
Honours	68	13.6
Masters	30	6.0
PhD	15	3.0
Missing	3	.6
Race		

² This is the colloquial term used at Rhodes and Grahamstown to refer to private accommodation in town. Usually this accommodation is shared with other students.

Black	274	54.9
Coloured	13	2.6
Indian	16	3.2
White	188	37.5
Other	8	1.6
Missing	2	.4
Living Arrangements		
University Residence	326	65.1
In Digs	158	31.5
With Parents or guardians	12	2.8
Missing	3	.6
Pocket Money		
R500 or less	140	27.9
R501-R1500	212	42.3
R1501- R2500	90	18.0
R2501- R3500	27	5.4
R3501- R4500	20	4.0
R4501 or more	9	1.8
Missing	3	.6
Mean	1271.08	
SD	1065.41	
Alcohol Use		
Never consumed	66	13.2
Used to drink but not currently	92	18.4
Still drinking	343	68.5
Drinking Onset		
Early (below 15 years old)	54	16.5
Mid (15-18 years old)	232	69.5
Late (above 19years old)	46	14.0

2.3 Sampling Procedure

Participants were drawn from registered Rhodes University students across all faculties and levels of study. Inclusion criterion for participants was full time registered students. Sample size selections remains unclear for studies intending on using regression analyses. For example, the formula “ $n > 50 + 8m$ ” where m is the number of predictors has been suggested tentatively (Pallant, 2010; Tabachnick & Fidell, 2007). This study set out with the plan of using 13 predictors, therefore according to the above formula, a sample size of 154 would be adequate. However, although appreciating such suggestions, an even higher sample size of 300 which is just 5 % of the student population was sought. In fact, what is clear in terms of sample size selection when using regression analyses, is that the larger the sample size the better (Tabachnick & Fidell, 2007).

The sample frame consisted of all email addresses ($N= 6619$) of students who have given consent through their email settings to receive institutional messages and research invitations. A stratified random sampling design was followed to achieve a representative sample based on two variables: gender and level of academic study. The design yielded the sample size reflected in Table 2.2. Selection of these two variables was informed by research findings of gender differences in alcohol use (Young & Mayson, 2010; Young & de Klerk, 2012) and the developmental progression of alcohol use across adulthood (Schulenberg & Patrick, 2012). Attaining a sample that is representative of the population as far as gender was concerned ensured that a more accurate measurement of alcohol use was attained. For example, oversampling of female students- who have been found to consume less alcohol- may deflate the level of alcohol use (frequency and intensity). Further stratifying by level of academic study ensured that students across all the years of study were chosen to get a representative account instead of possibly oversampling first year students whom some studies have found to use alcohol more (Bewick et al., 2008) thus inflating the results.

Striving for precision in the sample selected to be representative of the student population, a proportionate allocation method was utilized as indicated in Table 2.2. This reduces sampling biases and maximizes representativeness.

Table 2.2
Sampling Table using a Proportionate Strategy

	Males		Females		Total
	N	n (MN)	N	n (MN)	n (MN)
Year 1	672	102 (41)	1140	172 (69)	
Year 2	580	88 (35)	837	126 (50)	
Year 3	579	88 (35)	859	130 (52)	
Year 4	59	9 (4)	134	20 (8)	
Postgraduate	803	121 (49)	956	144 (57)	
TOTAL	2693	408 (164)	3926	592 (236)	1000 (400 ^a)

Note. n= number of students invited. MN= minimum number of students needed for sample.

^aThis number is based on the anticipated 40% response rate in surveys (Cook, Heath, & Thompson, 2000)

2.4 Material/Measures

An online questionnaire with 40 items was utilized: 20 items from the Drinking Motives Questionnaire (DMQ; Cooper, 1994); 10 items from the Alcohol Use Disorder Identification Test (AUDIT; Babor, Higgins-Biddle, Saunders, & Monteiro, 2001), 2 items regarding descriptive drinking norms, and 8 demographic questions. The questionnaire is appended as Appendix A. The items of the questionnaire were inputted manually by the researcher into Survey Monkey (an online survey hosting website). These measures are described below.

2.4.1 Drinking Motives Questionnaire (DMQ).

2.4.1.1 Scale composition. Drinking motives were assessed using the DMQ. This measure is an updated version of an earlier 15 item questionnaire developed by Cooper et al.

(1992). The DMQ was originally utilized among adolescent samples; however, it has become the favoured measure of drinking motives in other populations, including university students (Kuntsche, Knibbe, Gmel, & Engels, 2005). It has four subscales which were deduced from Cox and Klinger's (1988) motivational model of alcohol use. These subscales are: Social Motives, Enhancement Motives, Coping Motives, and Conformity Motives. All subscales have 5 items with response options in a five point Likert format ranging from 1 (almost never) to 5 (almost always). The response options are preceded by the statement: "Now I am going to read a list of reasons people sometimes give for drinking alcohol. Thinking of all the times you drink, how often would you say that you drink for each of the following reasons?" However, because the survey was hosted online, this was adapted to read, "Listed below is a list of reasons people sometimes give for drinking alcohol. Thinking of all the times you drink, how often would you say that you drink alcohol for each of the following reasons?"

Social motives include reasons in which drinking alcohol is directed towards gains in social relationships and contexts. Items include (with the numbering on the scale in parentheses): (3) "Because it helps you enjoy a party", (5) "To be sociable", (11) "Because it makes social gatherings more fun", (14) "Because it improves parties and celebrations", (16) "To celebrate a special occasion with friends".

Enhancement Motives comprise items that entail the improvement of positive affective (emotional and physiological) states. These items were (7) "Because you like the feeling", (9) "Because it is exciting", (10) "To get high", (13) "Because it gives you a pleasant feeling", (18) "Because it's fun".

Coping Motives include items interested in the removal of negative affective states. These items were: (1) "To forget your worries", (4) "Because it helps you when you feel

depressed and nervous, (6) “To cheer up when you are in a bad mood”, (15) “Because you feel more confident and sure of yourself”, (17) “To forget about your problems”.

Conformity Motives have items which involve drinking in order to avoid negative social experiences of exclusion and not belonging. Items include: (2) “Because your friends pressure you to drink”, (8) “So others won’t kid you about not drinking”, (12) “To fit into a group you like”, (19) “To be liked”, (20) “So you don’t feel left out”.

2.4.1.2 Psychometric properties of DMQ.

2.4.1.2.1 Internal consistency. From scale development and publishing in 1994, the DMQ has received consistent results regarding internal consistency, which is a form of reliability. Cooper (1994) originally found the following alphas: .84 (coping motives), .85 (conformity and social motives), and .88 (enhancement motives). These good alpha levels have recently been found also by Martens, Rocha, Martin and Serrao (2008) on a sample of undergraduates in America. Martens et al. (2008) found alphas to be ranging from .81 (Conformity motives) to .87 (Social Motives) supporting other works (for example, McLean & Lecci, 2000).

2.4.2 Alcohol Use Disorder Identification Test (AUDIT).

2.4.2.1 Scale Composition. Alcohol use was assessed using this 10 item World Health Organization screening tool. The scale aims to delineate four domains: no risk, hazardous use (at risk of developing harmful consequences), harmful use (experiencing significant physical, mental and social consequences) and alcohol dependence (preoccupation with alcohol, increased tolerance and withdrawal symptoms (Babor, Higgins-Biddle, Saunders, & Monteiro, 2001). Given the differing units of measure in each question of the AUDIT, the response items differ but correspond to a numeric which is added to create a total score.

According to the AUDIT manual (Babor, Higgins-Biddle, Saunders, & Monteiro, 2001), the tool comprises of following items: (1) “How often do you have a drink containing alcohol?” (2) “How many drinks containing alcohol do you have on a typical day when you are drinking?” (3) “How often do you have six or more drinks on one occasion?” (4) “How often during the last year have you found that you were not able to stop drinking once you had started?” (5) “How often during the last year have you failed to do what was normally expected from you because of drinking?” (6) “How often during the last year have you needed a first drink in the morning to get yourself going after a heavy drinking season?” (7) “How often during the last year have you had a feeling of guilt or remorse after drinking?” (8) “How often during the last year have you been unable to remember what happened the night before because you had been drinking?” (9) “Have you or someone else been injured as a result of your drinking?” (10) “Has a relative or friend or a doctor or another health worker been concerned about your drinking or suggested that you cut down?”

2.4.2.2 Psychometric properties of AUDIT.

2.4.2.2.1 Internal consistency: The AUDIT has been found to be a reliable measure with reported alphas converging at .83 across 18 studies (Reinert & Allen, 2007). Furthermore, its reliability has been found within a South African university population (Young & de Klerk, 2012, Young & Mayson, 2010). Specifically, working with a sample of students from the university of interest in this current study, Young and de Klerk (2012) found Cronbach’s alpha for the AUDIT to be .85.

2.4.3 Descriptive drinking norms. Descriptive drinking norms refer to students’ perception of same gender typical students’ alcohol use (Young & de Klerk, 2012). In this study, two items from the AUDIT were reworded to operationalise descriptive drinking norms. The questions were: 1. “How many standard drinks containing alcohol do you think

the typical same gender student has on a typical day when drinking?” and “How often do you think the typical same gender student has 6 or more drinks on one occasion?”. These items have been previously used and found to have predictive validity of drinking behaviour (Young & de Klerk, 2012).

2.4.4 Demographic items. Eight (8) demographic items were included in the questionnaire: gender, level of study, race, age, pocket money, living arrangement, current drinking status, and age of first intoxication.

2.5. Procedures

During the second term of the academic calendar in 2014 (May 2nd), participants were invited via their student email addresses to participate in the study by completing a questionnaire which was hosted by a web-based survey portal over an 18 day period punctuated with three survey reminders. The use of an online survey was considered for the cost benefits, including ease of administration, and reasonable response rate capabilities (Greenlaw & Brown-Welty, 2009). Furthermore, online surveys have been successfully utilised in alcohol research (Miller et al., 2002). The email (Appendix B) the students received detailed the nature of the project and included a URL link to the survey hosted on Survey Monkey. Also on the email, participants were informed that their participation gave them the opportunity to be a lucky winner of a R1000 draw prize.

Any electronic device (smart phone, laptop, desktop computer, and tablet) with internet connectivity from which the students received the invitation email could be used to complete the survey. Clicking the URL directed interested participants to the survey portal where they were introduced to the survey. The survey had a filter item (current alcohol use status: never drank, drank regularly previously but stopped, or drinking is ongoing) after seven demographic variables which directed drinkers and non-drinkers to different items

subsequently. Non-drinkers (including previous drinkers who stopped drinking) only then responded to the two items operationalising descriptive drinking norms. Drinkers continued to respond age of drinking onset, the two descriptive drinking norm items, the AUDIT, and the DMQ. A picture displaying the definition of 'standard' drink was included before participants responded to the descriptive drinking norm items and the AUDIT which used the term 'standard drink'. Participants could indicate their responses by clicking an already visible response or selecting it from a drop-box. A majority of the items on survey were set to require a response before participants moved to the next page or before completing the survey. This was done to ensure the integrity of data collected. Overall, the survey could be completed in less than ten minutes.

2.6 Data Analysis Plan

Questionnaire responses were extracted from the web-based portal and analysed using Statistical Package for Social Sciences- Version 20 (SPSS-20, IBM Corp, 2011). Three sets of analyses were computed to address the five research questions.

Initially, the set of analyses were descriptive in nature aiming to reveal responses across drinking motives, and also alcohol use. Secondly, differences in alcohol use severity, and differences in drinking motives were explored by conducting independent samples t-tests for dichotomous independent variables, and one-way between-groups ANOVA with Post-Hoc Tests for categorical variables with three or more distinct categories. The dichotomous independent variable was gender, while the multi-layered variables were age, age of alcohol use onset, year of study and residential status. Age had the following categories: 17-20 years, 21-24 years, 25-28 years, and 29 years and above. In accord to de Wit et al. (2000) age of onset in three categories: early onset (10-14years old), middle onset (15-18 years old), and late onset (19 years or older). Level of study included first year up to PhD students.

Residential status categories were: living with parents or guardians, living in university residences, and living in private accommodation – also known as digs.

Lastly, a hierarchical multiple regression analysis was computed to explore the role played by drinking motives in alcohol consumption. This analysis went further to assess whether reasons for use accounted for any unique variance over and above Young and de Klerk's (2012) model. The sequence of the blocks was temporal. The first block included race (coded black/not black to aid in interpretation), age and gender; the second block was age of alcohol use onset and pocket money; in the third block were the estimates of normative drinking among Rhodes students; finally, drinking motives were added based on previous findings of their effects on alcohol use, starting with the least effect (conformity, then coping, the enhancement, social then motives).

2.7. Ethics

This study received ethical clearance at multiple levels within the Rhodes University structures. The study was coded orange meaning that it involved “standard social and/or psychological studies of individuals or groups of human subjects not considered ‘vulnerable’ or with potential to cause distress, embarrassment or offence. In such studies, fairly standard ethical procedures might contain mild risk” (Rhodes University Ethical Standards Protocol, 2011, p. 5). Clearance was received from the Rhodes Psychology Department's Research Projects and Ethics Review Committee (RPERC) and the Humanities Higher Degrees Committee. Since the study sought to invite Rhodes students, approval was requested from the Dean of Students (Appendix C) and the Registrar (Appendix D). Additional approval from the Registrar entailed a request to have the email database of all registered students who have given consent through their email settings to receive research invitations. Approval from the Dean (Appendix E) and Registrar (Appendix F) was attained.

From the invitation to participate and on the actual survey, participants were briefed of the nature of the study in order to ensure their informed consent about participating. Participants were informed of their right to withdraw from the study at any point should they wish to. Although students were requested to provide their student numbers, the results from the study could not be associated with them. The student numbers were requested to allow for identification and contact should they be winners of a lucky draw prize (R1000) of which participants stood an equal chance to win. Thus, apart for the requested student number, participants' confidentiality and anonymity were upheld.

2.8 Chapter Summary and Conclusion

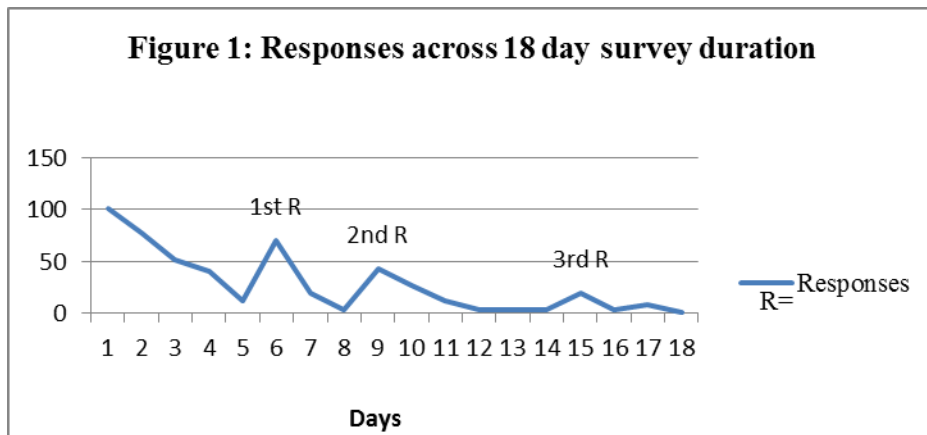
This chapter described the five research questions this study sort to answer. In addition to providing the alcohol use trends and their correlates, the study had the primary aim of exploring drinking motives and the role they (motives) played in alcohol use. An online survey methodology was utilised given reported benefits. Students' participation required completing a 40 item questionnaire with seven demographic variables, two items on descriptive drinking norms. Three sets of analyses were put in place to provide results presented in the next chapter.

3. Results

This chapter presents the results of this study. The five research questions described in the previous chapter are answered here. These questions guide the presentation of the results. The alcohol use trend is described, followed by exploration of correlates of alcohol use. Thereafter, the endorsement of drinking motives and their correlates are presented. Finally, the role of drinking motives on alcohol use over and above effects of variables explored by Young and de Klerk (2012) is presented. However, preliminary analyses are reported first.

3.1 Preliminary Analyses

3.1.1 Response Pattern and Rate. The response pattern across the 18 day survey duration is presented in Figure 1. 284 (56.9%) participants had already responded before the first reminder was sent (on day 6 of the survey). In fact, the first three days of the survey attained just under half of the responses (45.9%). On the day of the first reminder, responses increased to 70 compared from 12 the previous day. By the end of the day of the first reminder, 70.6% of responses had been collected. From this first reminder to the last day before (day 8) the second reminder (day 9), an additional 94 responses were collected. From the second reminder (day 9) to a day before (day 14) the final reminder (day 15) 91 additional responses were collected. Following the final reminder, 32 more responses were collected. Thus, 501 (284+ 94+91+32) responses were collected. Thus, of the 1000 students invited, a 50% response rate was attained.



3.1.2 Psychometric Properties of Measures. The results pertaining to investigations of the psychometric properties of the Drinking Motives Questionnaire (DMQ) and the Alcohol Use Disorder Identification Test (AUDIT) are now presented.

3.1.2.1 DMQ.

3.1.2.1.1 Internal Consistency. A reliability analysis was computed as part of this study. The internal consistency of the sub scales were as follows: .84 for social, .83 for coping, .88 for enhancement, and .80 for conformity motives. The internal consistencies study are presented in Table 3.1.

Table 3.1
Psychometric Properties of the DMQ

Drinking Motives Questionnaire		
Factor	α	n ^a
Social Motives	.839	330
Enhancement Motives	.875	330
Coping Motives	.833	330
Conformity Motives	.802	330

^aRepresents only drinking participants who completed the DMQ instead of the entire sample (n=501)

3.1.2.2 AUDIT

3.1.2.2.1 *Internal Consistency.* As shown in Table 3.2, this study found a Cronbach alpha coefficient of .76 for the ten item AUDIT.

Table 3.2
Psychometric properties of the AUDIT

Factor	α	N
Total Audit	.76	309

3.2 Alcohol Use Trend

As described in the characteristics of the sample in the previous chapter, the drinking prevalence was 68.5% of participants, while 13.2% of participants had never consumed alcohol in their lives. Of the 343 students who reported to be drinkers, their pattern of alcohol use is captured in Table 3.3. As shown, 76.1% of drinking students drank twice or more times a month. The bingeing rate was about 51.4% of drinking students, and 22.4% of drinking students bingeed weekly or more.

Table 3.3
AUDIT Item frequencies

Alcohol Use Variables	N	(%)
Frequency of Use		
Never	1	.3
Monthly or less	80	23.5
2-4 times a month	137	40.3
2-3 times a week	112	32.9
4 or more times a week	10	2.9
Quantity (standard drinks in one sitting)		
1 or 2	71	20.9
3 or 4	94	27.7
5 or 6	101	29.8
7, 8 or 9	49	14.5
10 or more	24	7.1

Frequency of Binging (6 or more standard drinks)		
Never	67	19.8
Less than monthly	104	30.7
Monthly	92	27.1
Weekly	73	21.5
Daily or almost daily	3	.9
Can't Stop Drinking once started		
Never	222	66.3
Less than monthly	57	17.0
Monthly	28	8.4
Weekly	25	7.5
Daily or almost daily	3	.9
Failing to meet responsibilities because of drinking		
Never	212	62.4
Less than monthly	87	25.6
Monthly	25	7.4
Weekly	16	4.7
Daily or almost daily	0	0
Needing morning drink after previous night's drinking		
Never	142	90.6
Less than monthly	116	7.4
Monthly	56	1.2
Weekly	21	.3
Daily or almost daily	5	.6
Feeling remorse and guilt post drinking		
Never	142	41.8
Less than monthly	116	34.1
Monthly	56	16.5
Weekly	21	6.2
Daily or almost daily	5	1.5
Not remembering events of drinking night before		
Never	160	47.1
Less than monthly	104	30.5
Monthly	52	15.3
Weekly	20	5.9
Daily or almost daily	4	1.2
Sustaining injury to self or others as result of drinking		
No	236	69.4
Yes, but not in last year	52	15.3
Yes, during last year	52	15.3

Receiving professional advice to stop drinking		
No	290	86.1
Yes, but not in last year	22	6.5
Yes, during last year	25	7.4

Of the drinkers, 41% to 90%, depending on the symptom, had never experienced the varied alcohol use symptoms as measured by the AUDIT. Drinking students (percentage in parenthesis) experienced the following consequences monthly or more frequently: 1. Can't Stop Drinking once started (16.8%); 2. Failing to meet responsibilities because of drinking (12.1%); 3. Needing morning drink after previous night's drinking (2.1%); 4. Feeling remorse and guilt post drinking (24.2%); 5. Not remembering events of drinking night before (22.4%). Over the past year 15.3% of drinking students had sustained injury to self or others as a result of their drinking, and 7.4% of students had received professional advice to stop drinking.

Table 3.4 presents a distribution of students according to their level of risky drinking. Around one third of drinking students (34.0%) or one fifth (21.0%) of the whole sample of students were drinking at safe levels. Nearly half of the drinking students (45.3%) drank at hazardous levels, while 20.7 % drank at harmful to alcohol dependent levels.

Table 3.4
Proportion of Risk Zone Characterisation in Drinking Sample

	Entire Sample		Drinking Sample	
	N	%	N	%
Risk Zone 1/No Risk	105	21.0	105	34.0
Risk Zone 2/ Hazardous	140	27.9	140	45.3
Risk Zone 3/ Harmful	44	8.8	44	14.2
Risk Zone 4/ Dependence	20	4.0	20	6.5

Note. Risk Zone 1: "low risk drinking or abstinence". Risk Zone 2: "alcohol use in excess of low-risk guidelines and is generally indicated when AUDIT score is between 8-15. A brief intervention using simple advice and patient education materials is the most appropriate

course of action". **Risk Zone 3:** "Scores range from 16-19... managed by combination of simple advice , brief counselling and continued monitoring, with further diagnostic evaluation indicated if the patient fails to respond or is suspected of possible alcohol dependence". **Risk Zone 4:** "AUDIT scores in excess of 20. These patients should be referred to a specialist for diagnostic evaluation and possible treatment for alcohol dependence" (Babor et al. (2001, p.21).

3.3 Alcohol Use Correlates

Table 3.5 presents the associations between alcohol use and demographic variables.

Table 3.5

Descriptive statistics and differences between demographic variables on the AUDIT

Demographic Variable	n	AUDIT Mean (SD)
Gender		
Females	183	9.44 (5.22) ^a
Males	126	12.28 (5.37) ^a
Race		
Black	127	10.52(5.56)
Coloured	12	8.67 (3.39)
Indian	6	7.33 (5.57)
White	156	10.97 (5.52)
Level of Study		
First Year	76	11.24(6.09)
Second Year	67	10.54 (5.03)
Third Year	80	11.54 (5.70)
Honours	49	9.49 (4.61)
Masters	22	10.45 (5.10)
PhD	13	6.31 (3.33)
Living Arrangements		
University Residence	188	10.53(5.50)
In Digs	117	10.85 (5.45)
Living with parents or guardians	8	9.86 (4.73)
Age of First Intoxication		
Early Onset (below 15)	46	14.28(5.87) ^a
Mid Onset (15-18)	216	10.83(5.06) ^a
Late Onset (19 or older)	46	6.28(3.40) ^a

Note. Variables with identical symbols (for example ^a) indicate statistical significant differences between respective mean scores at the .05 level.

3.3.1 Gender. A statistically significant difference was found between females (M= 9.44, SD= 5.22) and males (M=12.78, SD= 5.37; $t(307) = -4.645$, $p < .001$) regarding their total AUDIT scores showing that males use alcohol at greater levels of severity. The magnitude of the difference (mean difference = -2.84, 95% CI: -4.04 - -1.64) was medium (Cohen's $d = -.63$).

A Chi-square test for independence was computed to explore the relationship between gender and AUDIT risk zones (No Risk, Hazardous, Harmful, and Dependent). As shown in the crosstabulation presented in Table 3.6, there was a significant association between gender and risk zones, $\chi^2(4, n= 309) = 20.4$, $p < .001$. Cramer's $V = .202$. Greater proportions of females were in the safe zones (No Risk and Hazardous use) compared to males, whose proportions increased in the risky zones (Harmful use and Alcohol dependence), suggesting that a greater proportion of males need brief counselling (Zone III) and referral for specialist diagnostic evaluation and treatment (Zone IV).

Table 3.6
Proportion of Risk Zone Characterisation in Females and Males

	Female		Male	
	N	%	n	%
Risk Zone 1/No Risk	78	74.3	27	25.7
Risk Zone 2/ Hazardous	76	54.3	64	45.7
Risk Zone 3/ Harmful	21	47.7	23	52.3
Risk Zone 4/ Dependence	8	40	12	60.0

Note. Risk Zone 1: "low risk drinking or abstinence". Risk Zone 2: "alcohol use in excess of low-risk guidelines and is generally indicated when AUDIT score is between 8-15. A brief intervention using simple advice and patient education materials is the most appropriate course of action". Risk Zone 3: "Scores range from 16-19... managed by combination of simple advice, brief counselling and continued monitoring, with further diagnostic evaluation indicated if the patient fails to respond or is suspected of possible alcohol dependence". Risk Zone 4: "AUDIT scores in excess of 20. These patients should be referred to a specialist for diagnostic evaluation and possible treatment for alcohol dependence"

3.3.2 Race. Race differences among Rhodes students regarding alcohol use were tested. There was no statistically significant relationship between the race categories on the AUDIT: $F(4, 302) = 1.18, p = .319$.

3.3.3 Level of study. To investigate the developmental trend of alcohol use across levels of study, a one-way between-groups ANOVA with Post hoc tests was computed with level of study serving as the independent factor. There was a statistically significant difference among students on the total AUDIT score. Post-hoc comparisons using Tukey HSD tested indicated a statistically significant difference between: 1. first year ($M= 11.23, SD= 6.08$) and PhD ($M=6.30, SD= 3.32$) students; 2. third year ($M= 11.53, SD= 5.70$) and PhD ($M=6.30, SD= 3.32$) students. It appears that alcohol use peaks in first year and third year (the final year of most undergraduate degrees).

When students were grouped into undergraduate and postgraduate categories a difference was also found on the AUDIT total. Undergraduates scored higher ($M=11.13, SD= 5.63$) compared to postgraduates ($M= 9.25, SD= 4.72$), $t(177)= 2.951, p= .004$. The magnitude of the difference was small (Cohen's $d= .36$)

3.3.4 Living arrangements. The possible role of residence type on alcohol use severity was computed with a one-way between-groups ANOVA. This investigation found no significant difference between students living on campus, in digs or with parents: $F(2, 304) = .20, p = .83$.

3.3.5 Age drinking onset. Age of first intoxication was coded into three categories: early onset (10-14 years old), middle onset (15-18 years old), and late onset (19 years or older) in accord to de Wit et al. (2000). There was a statistically significant difference on the

AUDIT score ($F(2, 301) = 30.04, p < .001$). It was found that the earlier the age of first intoxication the greater the AUDIT score. Post hoc comparisons using the Tukey tests showed that all groups differed significantly between each other: early onset ($M = 14.28, SD = 5.87$), mid onset ($M = 10.83, SD = 5.06$), and late onset ($M = 6.28, SD = 3.40$). The magnitude of the differences on the ranged from medium (Cohen's $d = .63$, between early and mid-onset users) to large (Cohen's $d = 1.66$, between early and late onset users).

3.3.6 Pocket Money. A small positive relationship was found between pocket money and the AUDIT score ($r = .12, p = .04$).

3.3.7 Drinking norms. The drinking norms of interest in this study were descriptive drinking norms which refer to students' perception of same gender typical students' alcohol use. Chi-square goodness-of-fit tests were computed to compare students' estimates with the actual scores of standard drinks in one sitting and frequency of bingeing. As shown in Table 3.7, drinkers ($\chi^2(4, n=336) = 76.75, p < .001$) and teetotallers ($\chi^2(4, n=154) = 11.19, p = .024$) tended to overestimate fellow students' quantity of drinks in one sitting. Similarly, drinkers ($\chi^2(4, n=154) = 128.77, p < .001$) and teetotallers ($\chi^2(4, n=337) = 240.3, p < .001$) also overestimated the frequency of their peers' bingeing.

Table: 3.7

Proportion of actual and estimates of alcohol consumption and bingeing frequency

	Actual %	Drinkers' Estimates %	Non-drinkers' Estimates %
Standard drinks in one sitting			
1 or 2	20.9	3.9	11.0
3 or 4	27.7	27.6	35.1
5 or 6	29.8	43.0	33.8
7 or 9	14.5	20.2	12.3
10 or more	7.1	5.3	7.8
Frequency of Bingeing			
Never	19.8	1.5	2.6
Less than monthly	30.7	11.6	13.6
Monthly	27.1	36.2	26.0

Weekly	21.5	49.6	55.8
Daily or almost daily	.9	1.2	1.9

3.4 Drinking Motives and their Correlates

3.4.1 Drinking motive trend. Table 3.8 displays the endorsement of the drinking motives among 330 students, while Table 3.9 shows variables associated with drinking motives. The strongest drinking motive among this sample was enhancement motives ($M=13.7$, $SD=5.17$), which marginally surpassed social motives ($M=13.0$; $SD=3.65$).

Table 3.8
Endorsement of drinking motives

Drinking Motive	M (mean of total motive score)	SD
Enhancement Motives	13.7	5.17
Social Motives	13.0	3.65
Coping Motives	9.8	4.30
Conformity	7.0	2.77

3.4.2 Gender. An independent samples t-test was computed to explore possible gender differences on all four drinking motives. The statistically significant differences were on the social and enhancement drinking motives. Males ($M=14$, $SD=3.24$) scored higher compared to females ($M=12.41$, $SD=3.78$; $t(328) = -4.135$, $p < 0.001$) on social motives with a near medium effect (Cohen's $d = .45$). Additionally, males ($M=14.62$, $SD=4.92$) scored higher compared to females ($M=13.02$, $SD=5.26$) on enhancement drinking motives. However, this latter difference had of a small magnitude (Cohen's $d = .314$).

3.4.3 Race. The only difference found regarding race was between white ($M = 12.77$, $SD = 4.67$) and black ($M = 14.78$, $SD = 5.54$) students on the enhancement motives: $F(4,324) = 4.144$, $p = .003$, Cohen's $d = .39$, near medium effect size.

3.4.4 Living arrangement. There was no statistically significant difference in all four drinking motives among students living in university residence, in digs, and with parents or guardians.

3.4.5 Level of study. No statistically significant difference was found regarding drinking motives among students of different study levels. However, it was interesting to observe that drinking motives peaked in freshmen year and then again in third year (final undergraduate year for most) sometimes surpassing the scores of the first-year students.

3.4.6 Age of drinking onset. Onset of alcohol use statistically differentiated endorsement levels of social motives ($F(2,321) = 23.22, p < .001$), coping motives ($F(2,321) = 5.289, p = .005$), and enhancement motives ($F(2,321) = .620, p < .001$). The effect sizes (Cohen's d) ranged from .3 to 1.23 indicating medium to large effect. Early onset drinkers scored significantly higher on all drinking motives but conformity motives.

3.4.7 Risk zones. There was a statistically significant difference between the four risk zones on the AUDIT and the four drinking motives. The trend was such that the greater the endorsement of drinking motives the increased likelihood that participants were in higher risk zones. More specifically, those who scored in the Zone 1 scored statistically different than those on the Zones 2-4 on drinking motives (Social= $F(3,296) = 21.813, p < .001$; Coping Motives= $F(3,296) = 13.005, p < .001$; Enhancement Motives= $F(3,296) = 25.502, p < .001$; Conformity Motives= $F(3,296) = 3.370, p < .001$). The magnitude of the differences ranged from medium (Cohen's $d = .49$) to large (Cohen's $d = 1.41$).

Table 3.9
Analysis of drinking motives and demographic variables

Demographic Variable	n	Social Motives	Enhancement Motives	Coping Motives	Conformity Motives
Gender					
Female	190	12.41 (3.78) ^a	13.02 (5.26) ^a	9.53 (4.37)	6.84 (2.89)
Male	140	14.02 (3.24) ^a	14.62 (4.92) ^a	10.19 (4.18)	7.30 (2.58)

Race					
Black	138	13.15 (3.69)	14.78 (5.54) ^a	10.21 (4.74)	7.00 (2.80)
Coloured	12	11.51 (3.42)	11.66 (5.43)	7.41 (2.71)	6.91 (2.50)
Indian	5	12.60 (6.54)	15.80 (3.96)	12.00 (8.00)	8.60 (5.31)
White	168	13.15 (3.55)	12.77 (4.67) ^a	9.61 (3.81)	7.09 (2.72)
Living Arrangements					
Campus Residence	199	13.07 (3.71)	14.14 (5.13)	9.80 (4.29)	7.06 (2.83)
In Digs	121	13.34 (3.59)	13.23 (5.20)	10.00 (4.36)	6.98 (2.61)
With Parents/Guardians	8	11.00 (1.85)	11.37 (5.18)	8.25 (3.57)	7.62 (4.06)
Level of Study					
First Year	84	13.07 (3.65)	13.71 (5.08)	10.11 (4.08)	6.75 (2.72)
Second Year	74	12.95 (3.77)	13.90 (5.22)	9.85 (4.66)	7.10 (2.37)
Third Year	85	13.38 (3.69)	14.48 (5.57)	10.52 (4.66)	7.43 (7.21)
Honours	50	13.28 (3.87)	13.10 (4.82)	8.72 (3.64)	6.76 (2.30)
Masters	22	12.81 (3.31)	13.63 (4.82)	8.50 (3.47)	6.31 (2.10)
PhD	13	12.23 (2.94)	10.82 (2.70)	9.30 (3.81)	7.92 (3.98)
Age of First Intoxication					
Early Onset	54	14.72 (3.64) ^{a b}	16.25 (5.51) ^{a b}	11.01 (4.74) ^{a b}	7.16 (2.93)
Mid Onset	226	13.38 (3.35) ^{a c}	13.89 (4.81) ^{a c}	9.94 (4.19) ^{a c}	7.13 (2.80)
Late Onset	44	10.18 (3.25) ^{ab c}	10.13 (4.35) ^{ab c}	8.22 (3.89) ^{ab c}	6.63 (2.55)
Audit Zones					
No Risk	103	10.93 (3.73) ^{a b c}	10.48 (4.97) ^{a b c}	8.00 (3.77) ^{a b c}	6.69 (2.85) ^a
Hazardous Use	136	13.55 (3.16) ^a	14.37 (4.58) ^{a d}	9.94 (4.11) ^{a d}	6.83 (2.42)
Harmful Use	42	14.80 (2.94) ^b	16.00 (3.86) ^b	11.02 (3.86) ^b	7.71 (3.50)
Dependence	19	15.10 (2.55) ^c	17.52 (3.74) ^{c d}	13.15 (3.53) ^{c d}	8.52 (3.06) ^a

Note. Variables with identical symbols (for example ^a) indicate statistical significant differences between respective mean scores at the .05 level.

The results of variables (age, pocket money, and AUDIT score) upon which correlational analysis were computed are presented in Table 3.10.

3.4.8 Age. A bivariate correlation was computed to explore the relationship between age and the four drinking motives. There was a negative relationship between age and all four drinking motives, however, this was not statistically significant.

3.4.9 Pocket Money. There was no statistically significant relationship between pocket money and drinking motives (r ranged from -.076 to .041)

3.4.10 Alcohol use. There was low-moderate, statistically significant positive correlation between drinking motives and the total AUDIT score. The coefficients were: .486

(Enhancement Motives), .452 (Social Motives), .346 (Coping Motives) and .150 (Conformity Motives).

Table 3.10
Pearson Correlation Matrix for Drinking Motives and Main Variables

Variable	1	2	3	4	5	6	7	8	9
1. Age	1.00								
2. Pocket Money	.344**	1.00							
3. Social M.	-.066	.041	1.00						
4. Coping M.	-.094	.009	.557**	1.00					
5. Enhancement M.	-.072	-.034	.606**	.540**	1.00				
6. Conformity M.	-.017	-.076	.304**	.454**	.225**	1.00			
7. AUDIT Total	-	.116*	.452**	.346**	.486**	.150**	1.00		
	.154**								

*<.05

**<.01

3.5 Drinking motives as predictors of alcohol use

A hierarchical multiple regression was computed with the total AUDIT score as the dependent variable to evaluate the effect of drinking motives on alcohol use while controlling for demographic variables and descriptive drinking norms. A four-block hierarchical analysis was performed. Block sequencing was temporal: starting with race (coded black/not black to aid in interpretation), age and gender; the second block was age of alcohol use onset and pocket money; in the third block were the estimates of normative drinking among Rhodes students; finally, drinking motives were added based on previous findings (Kuntsche et al., 2005) of their effects on alcohol use, starting with the least effect (conformity, then coping, then enhancement, and finally social motives).

Violations of assumptions of multicollinearity and normality were investigated.

Firstly, multicollinearity - which occurs when there is a high correlation between independent variables - was evaluated through the correlation coefficient. A bivariate correlation of .7 was used as the ceiling. The strongest correlation was .557 between social and coping motives. Thus, this assumption was not violated. To probe further violations in linearity, a collinearity diagnosis was computed to elicit the Tolerance and Variance inflation Factor (VIF). Tolerance is an indicator of how much variance due to a particular independent variable is not accounted for by other independent variables in a model. There was no tolerance score below the .10 cut off suggested, thus confirming that no violations were present. This was further corroborated by the VIF scores below the 10 point cut off, which indicates no violations.

The assumption of normality was investigated through plots and scatter plots. The Normal P-P plot was in a reasonably straight line suggesting normality. The scatter plot was rectangular in shape which is an expected plot. A few outliers were present but they would not have affected coefficients in the model. Visual analysis is permitted instead of formal inference tests when samples are large, for example when there are more than 200 cases (Tabachnick & Fidell, 2007). Furthermore, statistical normality of scores in social sciences is often unlikely because of the underlying nature of the constructs of interest (Pallant, 2010). For example, in a population of students where over half of them binge drink, it is expected that a negative skew is expected. Although skew is common and theoretically expected, it should be noted that disturbances in normality lead to less robust statistical inferences (Bradley, 1982). The use of transformations to improve normality is sometimes suggested, however, the debate about whether or not transformations improve the analysis of the data has not been concluded (Pallant, 2010). Thus, no transformations were done with this data.

The analysis produced the model presented in Table 3.11. The whole model accounted for 38 % of the variance in the alcohol use, $F(11, 283) = 17.27, p < .001$. Drinking

motives uniquely added 11% to variance after controlling for the effects of demographic variables and descriptive drinking norms, R^2 change = .1, F change (4, 283) = 12.70, $p < .001$. Considered in totality, five variables statistically predicted alcohol use: enhancement motives ($\beta = .27$, $p < .001$), followed by age of alcohol use onset ($\beta = -.25$, $p < .001$), then pocket money ($\beta = .14$, $p < .01$), followed by age of participants ($\beta = .12$, $p < .05$), and finally, gender ($\beta = .11$, $p < .05$). Therefore, enhancement motives were strongest predictors.

Table 3.11
Hierarchical Multiple Regression Analyses Predicting Alcohol Use from Demographic Variables, Descriptive Drinking Norms and Drinking Motives

Predictor	β	ΔR^2	P
Model 1		.10	<.001
Race	.07		.18
Age	-.12		<.05
Gender	.11		<.05
Model 2		.26	<.001
Age of alcohol use onset	-.25		<.001
Monthly pocket money	.14		<.01
Model 3		.28	<.05
How many standard drinks containing alcohol do you think the typical (same-gender) student has on typical day when drinking?	.07		.20
How often do you think the typical (same-gender) student has 6 or more drinks on one occasion?	.01		.82
Model 4		.38	<.001
Conformity Motives	.01		.96
Coping Motives	.07		.29
Enhancement Motives	.27		<.001
Social Motives	.092		.16

3.6 Chapter Summary & Conclusion

This chapter presented results in relation to the research questions that this study sought to address. The drinking prevalence was found to be 68 %, while the bingeing rate was found to be 51% of drinking students, with 20.7% of drinking students using alcohol at harmful or alcohol dependent levels. Increased alcohol use was associated with males, undergraduates, early onset drinkers, student with more disposable income, and students' inflated perceptions of their peers' drinking. Students endorsed enhancement motives marginally more than social motives, followed by coping and conformity motives. Males, early onset drinkers, black students, and at risk (of alcohol use disorders) students endorsed the most motives, especially social and enhancement motives. Of primary concern was the role of drinking motives on alcohol use after controlling for the effects of descriptive drinking norms. Drinking motives, particularly enhancement motives displayed statistically significant impact in alcohol use. Other variables were also found to affect alcohol use. Gender, monthly pocket money, and age of alcohol use onset predicted alcohol use separately. These results highlight the complexity of alcohol use which are discussed in the next chapter.

4. Discussion

This study addressed five research questions related to alcohol use and consequences in a probabilistic sample of Rhodes University students. The first two questions involved: (1) describing the alcohol use trend, and (2) exploring the demographic correlates of the trend. The other three questions were: (3) exploring the role of drinking motives by firstly describing the drinking motives trend and (4) associated factors, and finally (5) investigating whether drinking motives predicted alcohol use when controlling for the effects of descriptive drinking norms and other demographic variables which have been found by Young and de Klerk (2012). A cross-sectional, online survey was employed to collect data over an 18 day duration. The sample comprised of 501 students. Statistical assumptions regarding computed analyses were investigated and have been reported in the previous chapter. This chapter discusses these findings.

In particular, this chapter will, firstly, discuss the study's data collection strategy and responses yielded, followed by the psychometric properties of the measures used; secondly, discuss the alcohol use trend and their correlates; thirdly explore drinking motives and their correlates; and finally investigate the role of the drinking motives in alcohol use and. This discussion will conclude with theoretical and clinical implications of the study in light of discussed limitations.

4.1 Discussion of Preliminary Analyses

4.1.1 Survey method, response rate and pattern. The use of online based surveys is gaining popularity over traditional paper-pencil and mailing surveys in today's technology driven era. Even in alcohol research among university students, online based surveys are becoming popular and yield sufficient response rates (Lorant, Nicaise, Soto, & d'Hoore, 2013), and demonstrate excellent test-retest reliability of measures like the AUDIT (Miller et

al., 2002). These new methods provide researchers and participants with novel ways of interacting to generate knowledge (Wright, 2005). Online survey methods succeed in their decreased cost and they allow for increased possibilities for researchers who would be disadvantaged by limited access to large pools of participants as is the case with student researchers who have limited funds (Kraut, Olson, Banaji, Cohen, Couper, 2004).

4.1.1.1 Cost benefits. In this study, the survey was hosted with a year subscription on Survey Monkey at the cost of R3700. Furthermore, this subscription could be used for numerous other surveys at no additional cost. These reduced costs in web-based surveys have been confirmed in an American study in which email based surveys were \$4.14 (circa R41) cheaper per participant as modes of administration compared to paper-pencil mailing surveys (Greenlaw & Brown-Welty, 2009).

4.1.1.2 Response rate benefits. Despite the current cost effectiveness of such web based surveys, initially, the surveys were found to yield lower response rates compared to mailing or telephone surveys (Couper, 2001; Fricker & Schonlau, 2002). However, there is more recent data suggesting that email-based administration may yield up to 10% more responses compared to paper-pencil based mailing methods (Greenlaw & Brown-Welty, 2009). This trend could represent the acceptance of and access to such technology in recent years. For example, in this study, participants all had email addresses and access to computers to participate. As a result, a 50% response rate was found, which is greater than 40% response rate found in traditional paper-pencil surveys (Cook, Heath, & Thopmson, 2000). In fact, in this survey, an additional advantage was that response rate could be monitored throughout the survey duration and this further allowed for tracking non-responders and sending them reminder alerts at a click of a button. The gains of this tracking method are also reflected in the improved response rate of 50% compared to a previous online based survey at Rhodes that was not sent via email which attained a response rate of

about 33% (Young & de Klerk, 2012). This present study could be argued to have increased the probability of participation because the emails were bound to be received whereas the previous study was only accessed by students who visited a university student portal.

4.1.1.3 Survey duration. The general response pattern in this study was that a majority (about 70%) of participants completed the survey within seven days of the survey. Thus, although longer durations for surveys would generally be assumed to lead to increased participation, the response patterns in this study suggest that a bulk of responses should be expected within briefer periods. Therefore, thoughts about increasing the probability of participation within these brief periods may be more likely to yield more responses compared to running a survey for extended periods.

4.1.2 Psychometric properties

4.1.2.1 Drinking Motives Questionnaire (DMQ).

4.1.2.1.1 Internal consistency. The DMQ yielded excellent alphas and suggests the applicability of the scale in the South African university context. This confirms findings of the cross-cultural applicability of the measure (Kuntsche et al., 2005).

4.1.2.2 Alcohol Use Disorders Identification Test (AUDIT). This measure was subjected to analysis of its psychometric properties.

4.1.2.2.1 Internal consistency. The scale was found to have good internal consistency although of a marginally decreased nature compared to previous studies. An analysis of the internal consistency of the AUDIT previously found excellent alphas in the .8 region (Reinert & Allen, 2007). However, in this study the alpha was .76. Although this was a drop even when compared to previous studies with Rhodes University students (Young & Mayson, 2010), the coefficient remained acceptable thus confirming the internal consistency of the

AUDIT. It has been noted that wider ranges of scores from diverse subsets improve reliability coefficients (Suhr & Shay, *n.d.*) suggesting that more homogenous populations would lend themselves to lower coefficients as may be the case in this study where heavy drinking was shared by over half of the population.

4.2 Discussion of Alcohol Use Trend

Alcohol use remains a prevalent phenomenon among Rhodes University students. This study found that up to 86.9% of students had consumed alcohol at some point in their lives but only 68.5% continue to drink. The lower drinking prevalence in this study is similar to the increasing numbers of teetotallers in other countries like Australia (Australian Institute of Health and Welfare, 2013). Early studies in South Africa (for example, Nkhoma & Maforah, 1994) estimated that 75% of students drank, while more recent studies (for example, Young & de Klerk, 2008) found the prevalence of alcohol use to be 89%. This lower prevalence is at odds with international observations of increased prevalence of drinking among recent cohorts of students compared to previous cohorts (Boland et al., 2006; Karam, Maalouf, & Ghandour, 2004). Additionally, by comparing the World Health Organization's 2011 (data of 2004) and 2014 (data of 2010) status reports on alcohol use in South Africa, there is a 13 % drop in life-time alcohol abstainers suggesting an increase in the prevalence of alcohol use.

There are numerous possible reasons for this lowering prevalence found in this study. This may be a direct consequence of alcohol interventions of the Rhodes University campus. The introduction of the Rhodes policy for the responsible use of alcohol in 2007 and a social norming approach in 2010 leading to numerous campaigns, including some targeting misperceptions regarding campus drinking and also efforts to change the nature of some campus events to being no-alcohol events (de Klerk & Young, 2012) may be involved. These

events included specific workshops delivered to incoming students during their orientation week. Incoming students are likely to be influenced by the existing culture of the university, thus these alcohol campaigns may have provided a subset of students with an alternative culture to the drinking culture that is characteristic of university life. Such a possibility of an alternative culture may equally be explained by the social norm theory that frames excessive alcohol use to be compounded by misperceptions held by students' regarding their peers (Perkins, 2002). In the case of lowered prevalence rates, the alcohol campaigns may have acted to create a normalising impression regarding abstinence from alcohol. In fact, the tongue-in-cheek catch phrase "pulling a Viv" (an abbreviation of the then Dean of Students meaning a night of relative abstinence from alcohol) became popular on campus (de Klerk & Young, 2012).

Notwithstanding the possibility of efficacy of the interventions, there are other possibilities involving the sample and the sampling. Regarding the former, it has already been documented that most students' decision to drink or not to drink is established before coming to university (Young & de Klerk, 2008; de Wit et al., 2000) so it may be possible that there is a cyclical change in the alcohol use trend (Schulenberg & Patrick, 2012) in which enrolling students are generally less inclined to drink. Sources of such change are multiple and sociocultural in nature (Schulenberg & Patrick, 2012). On the note of sampling, possibly a more representative sample of students has been attained. Drawing on the findings of salient gender and age/level of study differences (Schulenberg & Patrick, 2012) a decision was made to stratify the sample and employ a proportionate representation. Previous studies (for example Young & de Klerk, 2008) may have oversampled and added more drinkers. In fact, when comparing Young and de Klerk's 2008 convenience sample and Young and Mayson's 2010 random cluster sampling there is lowering on alcohol use variables in the latter study.

Despite this lower drinking prevalence rate, the bingeing rate was 51%, relatively similar to a previous Rhodes study (Young & Mayson, 2010) but 7% higher compared to the USA study of 119 universities (Wechsler, Lee, Kuo, Seibring, Nelson, & Lee, 2002). The consistent bingeing rate despite lowered drinking prevalence suggests that once ‘cultured’ in the existing drinking ways, students continue the legacy. This is consistent with Young and de Klerk’s (2012) inference from their studies and other literature that “university’s drinking cultures are resistant to change and are self-perpetuating” (p. 37- 38). Furthermore, reports of university students’ engagement in drinking games and pre-party drinking may also account for the stably high binge rate in this study.

The above account of the alcohol use trend provides a backdrop upon which the factors influencing alcohol use can be considered. These factors investigated in this study are now considered.

4.3 Alcohol Use Correlates

4.3.1 Gender. Consistent with previous research, males were found to consume alcohol at greater volumes and prone to greater consequences than female students. Biological and social factors seem to be at play here. Generally, males tolerate more volumes of alcohol due to their body water and the ability to metabolise ethanol faster compared to females (Frezza, di Padova, Terpin, Baraona, & Lieber, 1990). However, females may be more prone to alcohol related harm as a result of their decreased ability to metabolise ethanol (Baraona et al., 2001).

4.3.2 Race. Contrary to previous studies (Young & de Klerk, 2012; Young & Mayson, 2010) with Rhodes students which found that white students drink more than other students, this study did not find race differences in terms of alcohol use, a finding so far only

consistent with research among racially integrated communities without socioeconomic background differences (Feshazion et al., 2012).

Race is a controversial topic particularly in post-apartheid South Africa, and providing an account of the complex nature of race is beyond the scope of this thesis. Suffice to say that despite formal desegregation, there is evidence of racialised groupings in the general population (Durrheim & Dixon, 2005) and also in university (Koen & Durrheim, 2010; Schrieff, Tredoux, Dixon & Finchilescu, 2005) which gives rise to subgroup cultures with consequent behaviours and attitudes (Durrheim, Mtose, & Brown, 2011). Also, as a marker for sociocultural and economic differences, race is likely to play out to some extent in students' drinking. However, although these subgroupings may exist, there may also be a growing of shared perceptions of university life (young adulthood) as a phase of exploration in which drinking is permitted and encouraged. In fact, there is recent evidence of comparably high rates of alcohol abuse (41%) in South African universities with a majority of students (97%) being black (Kyei & Ramagoma, 2013). This seems to suggest that the drinking culture, characteristic of university life, may be increasingly growing and beginning to equally penetrate across the racial divide. This could be a function of steadily increasing interracial contact and black students' assimilation into the historically-white university drinking culture. The possibility of steady social integration is not without support. Moholola (2007) has found that black high school students in a multiracial school compared to those in single race school were more likely to report a desire for social contact and also more likely to have increased social contact with white students outside of school contexts. Although Moholola's (2007) study is at odds with established findings (for example, Koen & Durrheim, 2010) the possibility of increasing social contact among students in multiracial high schools may also reflect cohort effects with earlier generations (those who lived during Apartheid) more likely to be informally segregated compared to the so-called born-frees who

constitute Moholola's (2007) sample. Nevertheless, given the amount of research documenting race differences in alcohol use in South Africa, these recent results require verification by other studies before a more lucid explanation can be offered.

A parting note on race is that race groupings are not necessarily homogenous (Edwards et al., 2004). In countries that have experienced formal racial segregation, socioeconomic status and certain cultural experiences have been linked to particular race groups and these race categories have provided an easy way of summarizing differences, albeit at the neglect of within-group differences (Celious & Oyserman, 2002). For example, in post-apartheid South Africa there has been an increase in economic inequality within race groups (with the greatest increase being among black South Africans) compared to between race groups (van der Berg, 2010). The emergence of the black middle class translates to increases in purchasing power and lifestyle differences between this black middle class and their low class black countrymen. Celious and Oyserman's (2002) observation of this phenomena in the USA is likely applicable in South Africa when they remark that: "African Americans distinguish between themselves and Whites, to be sure, but they also distinguish between and among themselves based on physical features such as socioeconomic status (SES), gender, and skin tone" (p. 150.). In addition, even in absence of economic changes, within-group differences pertaining to alcohol use in South Africa have been found. For example, differences in alcohol consumption have been found between Afrikaans and English first language white students which have ascribed to cultural factors (Meyer, 2001).

4.3.3 Level of study. This study found significant differences in alcohol use only among first and third year students when compared to PhD students. The students in these two years of undergraduates were more prone to increased risky drinking. The existing literature regarding alcohol use and academic year of study is inconclusive in light of reports of some studies finding increases in use as years increase while others finding decreases or no

differences as years increase (Wicki Kutsche, & Gmel, 2010). Although the data in this study is cross-sectional, the data supports the developmental trend of alcohol use in university (Schulenburg & Patrick, 2012). First and third year, beginning and ending of undergraduate education for most of the students, respectively, is associated with peaked alcohol use compared to the other years. Both periods represent a crisis in transitioning from one phase of life to another, and drinking could be part of exploration and managing the transition. For example, first year may be marked by anxiety to belong which could lead one to being more influenced by the culture they wish to be a part of. Schulenburg and Patrick (2012) have noted that these "...transitions may simply result in some normative short-term deviance - such as excessive drinking - that is neither predictable in advance nor predictive of future functioning" (p. 21).

4.3.4 Living arrangements. There were no statistically significant differences found in terms of living arrangement among students' drinking in this sample which is at odds with previous findings (Wechsler & Nelson, 2008) even research among Rhodes students (Young & de Klerk, 2008). Contrasts with the research from America could be attributable to the presence of distinct sorority and fraternity cultures (so-called Greek systems) which demarcate student populations and are associated with increased alcohol use and consequences (Parker et al., 2009). These Greek systems do not exist in the South African university campuses. The contrast with previous research on Rhodes students possibly reflects the limited dispersion of results due to few cases of participants living with their parents (n=8). Although Young and de Klerk (2008) do not specify which residential statuses differ to one another, it could be hypothesised that living with parents would have led to differences. Thus this study, as a result of limited cases could not establish this difference. However, there were sufficient cases of students living in Digs and university residences, suggesting that these two groups do not statistically differ. This may be attributed to

decreased supervision, as has been found in previous studies (Young & de Klerk, 2008). This is likely because many of the students who live in digs and those that reside on campus go out drinking in town where there is limited supervision. Thus, ‘unpoliced’, drinking students form a relatively homogenous group with no differences in respect of supervision. Furthermore, it has been informally observed that most students start university living on-campus but move to digs with new friends made, thus maybe also perpetuating the campus drinking culture but now with no supervision at all in private accommodation.

4.3.5 Age of drinking onset. The effects of onset of alcohol use on later alcohol use were found in this study, in agreement with previous studies (DeWit et al., 2000; Young & de Klerk, 2012). Specifically, those with an earlier onset of alcohol use were more prone to increased alcohol use severity. The pathway to how this influence occurs is unclear (DeWit et al., 2000) and has not been statistically confirmed (Guttmanova et al., 2012). However, it has been found that later development of alcohol dependence was positively related with compromised development and increased substance use although these were not related with early onset of alcohol use in the linear fashion put forth by the hypotheses (Guttmanova et al., 2012). It may be possible that age of onset acts to moderate instead of mediate the relationship between the variables.

4.3.6 Pocket money. This study confirmed previous findings (for example, Bullock, 2004) of ‘more money, more drinking’ among students. However, it must be cautioned that due to limited finances some students may mitigate by exploring alternative drinking strategies like purchasing cheap alcohol for pre-party drinking (Kuntsche & Labhart, 2013) which may leave them susceptible to drinking harmful patterns like bingeing.

4.3.7 Drinking norms. This study found that generally students overestimate each other's drinking. Drinkers in this study tended to overestimate the number of drinks consumed by their peers in one sitting, consistent with previous research (Young & de Klerk, 2012). This trend provides support for the social norm theory which posits that behaviour is also influenced by an individual's perception of other people's behaviour (Perkins, 2002). An additional finding was that non-drinkers tended to overestimate drinkers' frequency of bingeing, which probably reflects their concern of the drinking culture as recipients of second-hand effects of heavy alcohol use (Wechsler, Moeykens, Davenport, Castillo, & Hansen, 1995).

4.4 Drinking Motives and their Correlates

4.4.1 Drinking motives trend. Compared to other studies (Kuntsche et al., 2005, 2006, for reviews) students in this study endorsed enhancement motives marginally more than they did social motives. This is at odds also with Peltzer's (2003) study with first year South African students. However, the relative appeal of both these motives makes sense from a motivational stance because both of the variables represent positive incentives (Cox & Klinger, 1988; Cooper, 1994). Additionally, Cox and Klinger (1988) have suggested that drinking incentives are strongest if they reinforce each other. In the current case with university students it seems likely that students may enhance their mood states in order to socialise 'better' with others. The interrelations between drinking motives will certainly influence the number of motives endorsed, a matter discussed below.

Consistent with the motivational model, this study found that increases in the reasons for drinking were accompanied by increases in drinking. The motivational model posits that drinking is a decision making processes in which the weights of the expected effects of drinking influence the behaviour (Cox & Klinger, 1988). Therefore, the more the reasons one

has the more likely the weight in the direction of drinking. Such thinking is similar to the cognitive theory of substance abuse in which anticipatory and permission giving beliefs are cardinal in influencing substance use (Wright, Beck, Newman, & Liese, 1993). This link with cognitive theory is expanded upon in section 4.4.7.

4.4.2 Gender. This study found that males significantly endorse more social and enhancement motives compared to females. It has been documented that males consume alcohol at greater volumes than females, thus one of the expectations from the motivational model would be to expect differing levels of motive endorsement. From the literature, social and enhancement motives have been shown to have strong relations to alcohol use (Kong & Bergman, 2010). Even in this study, as will be discussed below, these motives were among the strongest predictor of alcohol use severity in the entire regression model. Thus, males' greater inclination towards enhancement and social motives reflects in their actual drinking behaviour. This inclination may represent sociocultural underpinnings in which bravado and spirited camaraderie characterises males (Uy, Massoth, & Gottdiener, 2013).

4.4.3 Race. This study found a significant difference in endorsement of only enhancement motives between white and black students, with the latter reporting greater endorsement. This finding contrasts with research among American adolescents (ages 13-19) and young adults (ages 18-30) which has found differences among other motives apart from conformity motive (Cooper, 1994; Patrick et al., 2011). However, such studies offer minimal (Cooper, 1994) to no (Patrick et al., 2011) discussion about the race differences. Cooper (1994) only comments that although white participants had higher endorsement of enhancement, coping and social motives compared to black students "the effects were consistently small" (p. 126). One could speculate about the role of the transformative process in post-apartheid universities in leading to these differences regarding enhancement motives. Available research on university student adjustment from the University of Cape Town

(UCT) which was carried out when 50% of UCT students were white showed that white and black students did not differ statistically on three of four adjustment dimensions (emotional, academic and institutional adjustment) (Sennett, Finchilescu, Gibson, & Strauss, 2003). However, students differed on social adjustment (black students scored less) which was explained by fact that at the time not only was UCT a majority white student university, black students mostly relocated to live in campus residences which are in predominately white residential neighbourhoods. Rhodes on the other hand currently is predominately a black student university so it could be expected that there could be more social adjustment and owning of spaces by black students at Rhodes. Thus, without the initial distress of being a minority and decreased academic distress, the transformative process may be affording black students adjustment into a university culture characterised by exuberance. Some support for this assertion is data from University of Fort Hare showing that their predominately black student population were well adjusted using the same scale used in the UCT study (Sommers, 2013).

4.4.4 Living arrangement. Drinking motives were not found to significantly differ as a function of one's living arrangement. It must be noted that in this current study, there were few cases of individuals who lived at home with parents (n=8), thus limiting comparisons between the three living arrangements. A possible explanation for the absence of differences in drinking motives, particularly given the dominance of social and enhancement motives in this study, could be that students are participating in a university drinking culture which manifests mostly in social contexts (Kuntsche, 2006; McEwan, 2009). Thus, their drinking may be motivated by a desire to integrate socially in these contexts.

4.4.5 Level of study. Although not significant, drinking motives, particularly enhancement motives, peaked in first year and third year. The cross-sectional nature of this study limits one's speculation about the developmental nature of drinking motives. However,

there have been findings of a longitudinal nature which points to the prominence of enhancement motives between the ages of 18-22 (Patrick & Schulenberg, 2011), ages which roughly correspond with expected ages of starting year one to ending third year. These peaks could possibly reflect the developmental disturbances or transitions that come with starting university and leaving university.

4.4.6 Age of drinking onset. Early onset alcohol users were found to greatly endorse social, enhancement and coping motives compared to those who started drinking later on. Cox and Klinger (1988) have noted that a longer drinking career comes with it numerous drinking experiences in which the attainment of the desired effects of alcohol use reinforces the drinking motives.

4.4.7 AUDIT Risk zones. This study found that the greater the endorsement of drinking motives, the greater the risk one has of developing an alcohol use disorder. Some credence to this finding is from the cognitive model of substance abuse (Beck et al., 1993; Wright et al., 1993) in which the establishment and later activation of anticipatory beliefs (for example “drinking will make me feel better”) feeds to permissive beliefs which lead to substance use among dependent individuals. It seems reasonable to suggest that these anticipatory beliefs represent one’s perception of the outcome of substance use which when desired becomes, by definition, a motive. Thus, various drinking motives encompass varied anticipatory beliefs, and the number of drinking motives endorsed by one can be expected to result in a comparable number of anticipatory beliefs and permission giving beliefs which lead to substance use. For example, a client being seen for an alcohol use disorder whose drinking is consistently for coping motives is likely to have comparable anticipatory beliefs related to emotional relief (“it will make me feel better”) which leaves him at conflict with control beliefs (beliefs against the substance use) and permissive beliefs (beliefs for the substance use, for example, “today’s pain is too much to bare without alcohol, I will have a

drink”). Although one can hypothesise how this scenario may later turn out, there is research regarding coping motives which shows that this individual is likely to have a dual experience of initial relief and later negative affect (Piasecki et al., 2014), which is a common cycle in substance abuse and dependence.

4.4.8 Age. This study found a non-statistically significant, negative relationship regarding age and all four drinking motives. The direction of the relationship is consistent with previous studies (Cox, Hosier, Crossley, Kendall, & Roberts, 2006; Patrick & Schulenberg, 2011), and this is likely related to role changes towards adult roles and the need for drinking motives to reflect this responsibility (Patrick et al., 2011).

4.4.9 Pocket money. No significant relationship was found between drinking motives and personal income, suggesting that drinking motives are likely shared among university students despite discrepancies in their income.

4.4.10 Alcohol Use. Low to moderate correlations were found between drinking motives and alcohol use. From a motivational model stance, this was expected. Enhancement motives showed the strongest correlation, and this strength will be discussed in the next section.

4.5 Discussion of Drinking Motives as Alcohol Use Predictor

The last objective of this study was to find out whether students’ drinking motives had any bearing on their alcohol consumption. The whole model accounted for 38% of the variance in alcohol use. Drinking motives added 11% to the variance on alcohol use over and above drinking norms and demographic variables. This is consistent with previous studies (Halim et al., 2012) and confirms the theoretical underpinnings of the motivational model. This model implies that alcohol use is partially motivational in that drinking is a result of

expected changes in affect. It must be noted that the model assumes that individuals have introspective ability to be able to offer an account of the motives underlying their drinking. The field of psychology, particularly the applied and clinical sub fields have documented that behaviour has various determinants such as structural and social factors as evidenced in the biopsychosocial model (Durand & Barlow, 2010). Although acknowledging these various determinants, one could argue that the consciously recognised motives are loaded with certain feelings and thoughts (beliefs) which on their own are important to understand if one is to understand people's behaviour. The reasons that one has justified for their drinking provide understanding of the likely behaviours of alcohol use as is shown in this study.

From the regression model computed, the strongest effect was from the enhancement motive. This is a similar finding to previous research (Read et al., 2003; Merrill & Read, 2010). For example, not only have enhancement motives been strongly related to alcohol use cross-sectionally but enhancement motives have been related to alcohol use longitudinally after a year albeit marginally so (Read et al., 2003). Enhancement motives are conceptualised as having positive valence and the effect being intrapersonally rather than interpersonally as is the case in social motives. The intrapersonal, subjective feelings rest on attaining intoxication, or a perception of it, which generally requires increased volumes of alcohol compared to just having a glass of beer to 'fit in' as is the case with conformity motives. In fact, it has been found that individuals endorsing enhancement motives were more likely to perceive improvement in pleasurable states (Piasecki et al., 2014), thus reinforcing their enhancement motives because they would be attaining the affective change they want. It is likely that this reinforcement from drinking may lead to increases in drinking (Cox & Klinger, 1988). Therefore, in a quest to improve pleasurable states which requires much intoxication, students drinking for enhancement reasons are likely to have an increased alcohol use attached to it.

4.6 Conclusion: Implications, Limitations and Recommendations

In conclusion, preliminary analyses highlighted, firstly, the utility of online survey methods; and secondly, the applicability of the AUDIT and the DMQ in a multicultural context. Additionally, the findings portray the current alcohol usage as a combination of reduced drinking prevalence but stably high bingeing rates. Increased alcohol use severity is more associated with males, early onset drinkers, undergraduates compared to postgraduates, students having more pocket money, and students' perceptions of their peers' drinking levels. Students drank more for enhancement and social motives compared to coping and conformity motives. Generally, males (in respect to social and enhancement), black students (in respect to enhancement), early onset users (in respect of all four motives) and students at risk for alcohol use disorder showed certain significant endorsement of drinking motives. Regarding the primary aim, the results of this study support the premise of the motivational model that drinking motives have predictive power on alcohol use after controlling for the effects of descriptive drinking norms and demographic variables. The role of enhancement motives was established in predicting alcohol use. These findings have implications, which are now discussed.

4.6.1. Implications.

4.6.1.1 Theoretical implications: Multi-factorial and motivational model of alcohol use. It has long been established that alcohol use is phenomenon with multi-factorial influences. This study confirms this assertion and motivates for the need to appreciate the different influencing factors. Of note, building on Young and de Klerk's (2012) findings, this study highlights the role of drinking motives over and above the role of descriptive drinking norms and demographic variables. This study confirms the applicability of the motivational model of alcohol use (Cox & Klinger, 1988) in a non-American and non-European context.

The generalizability of the model speaks to the assertion that drinking behaviour, irrespective of cultural context, is partially driven by an underlying wish to fulfil a valued incentive; that is, a motive. Alcohol offers numerous chemical and non-chemical incentives. Understanding these incentives gives valuable insight into people's relationships with alcohol. In fact, these motives point out the phenomenological distinctiveness of alcohol use. People do not all use alcohol with the same incentives in mind. Furthermore, these incentives may also differ from one context to another.

It was found in this study that enhancement motives are the most frequently endorsed, although marginally surpassing social motives. This is at odds with research pointing to the prominence of social motives (Kuntsche et al., 2005, 2006). However, it makes theoretical sense that enhancement and social motives are similarly endorsed because these can be complementary particularly in the context of university students who have social gains to achieve by their drinking. However, there are clearer cases of difference if one considers different substances. Given the psychoactive effects of alcohol, for example disinhibition, the enhancement gains are likely to be reaped in social contexts thus leading to an overlap between the two motives. However, this overlap could just be for alcohol and not necessarily other psychoactive substances like stimulants which have the properties of cognitive enhancement (Garrett, 2008). In this latter case, enhancement motives and social motives are likely to share less of an overlap because the student using methylphenidate as a cognitive enhancer may not even have social gains in mind.

As separate entities, enhancement motives had the strongest predictive power of alcohol use. Given that university years are appraised as periods of "youthful exuberance", endorsement of enhancement motives is likely to offer predictive utility of student drinking.

Apart from establishing the role of drinking motives in a South African context, this study found factors associated with alcohol use. These factors include affluence, age of onset of drinking, gender, level of study, and descriptive drinking norms. These factors establish alcohol use as having an insidious course with various predisposing, precipitating and perpetuating factors. It appears improbable to establish a grand explanation but it suffices to acknowledge how the constellation of these variables affects alcohol use. However, a point should be made that before one decides to drink alcohol some rational process of weighing anticipated gains ensues. Due to habit, this rational process of weighing anticipated gains may become more fluid and procedural without much mental effort. And only through being asked about their motives for drinking will this process be revealed.

With an understanding of the role that alcohol plays in an individual's life, appropriate approaches can be used to intervene should there be risk or a clear alcohol use disorder. These theoretical implications have subsequent clinical application, which are now described.

4.6.2 Clinical implications. The initial gain of this study is providing a current description of the alcohol use trend which is important in effecting any form of intervention (National Institute on Alcohol Abuse and Addiction, NIAAA, 2002). The results show that there is a 20.5% drop in the drinking prevalence rate when compared to an earlier survey among Rhodes students (Young & de Klerk, 2008). There is no clear reason for this reduction, but it is worth noting that between the earlier survey and this current study there have been increased intervention efforts from Rhodes Dean of Student's office in the form of social normative feedback, alcohol free events, and first year student responsible drinking campaigns during orientation. However, this reduction could be that the previous study, from which the reduction is compared by, may have oversampled drinkers. Despite this reduction in drinking prevalence, the bingeing rate remains at 51% of drinking students, a finding that

school administrators need to know as they plan further interventions. Although not a replacement for formal longitudinal studies, the regular monitoring of the alcohol use trend as has been done in this study has an important role in informing decision making.

The relatively stable bingeing rate suggests that once ‘admitted’ into the drinking culture half of students are likely to continue the drinking culture of heavy alcohol use. This finding would remind practitioners of early recommendations that the first course of action in college drinking interventions should be to alter the drinking culture (NIAAA, 2002). A variation of the top-down approach is needed, thus putting university administrators at the fore in managing alcohol abuse and related consequences. Clear policies and programs and enforcement of those policies and programs are paramount (Lorant et al., 2013). A collaborative approach between students, administration and community is important but the university administrators should actively guide how they envision their institution. This vision should then also be well publicised.

Based on the finding of multifactorial influences of alcohol use, this study provides support for the “3-in-1” framework which was recommended in the USA following the Task Force of the National Advisory Council on Alcohol Abuse and Alcoholism (NIAAA, 2002). The framework has also been recommended in the Asian context more recently (Vantamay, 2009). The framework entails having multiple interrelated components targeting: (1) the individual students; (2) the student body as a whole; and (3) the university and its surrounding community. Should such a framework be applied, the role of drinking motives would serve as one of the components that need to be targeted. Drinking motives have been shown to be able to group students in somewhat homogenous groups for which different interventions could be applied. For example, Dow and Kelly (2013) found that teenagers with substance use disorders who drank for enhancement motives were less likely to benefit from outpatient group treatment compared to those who drank for coping motives. The authors

posit that the limited response in treatment could be a lack of fit to the treatment model and also could be effects of iatrogenic harm caused by combining substance users with distinctively different drinking motives which would weaken group engagement and cohesion. This highlights the value of distinguishing drinking students based on the benefits they receive from drinking, and allowing for tailored-made interventions per drinking motive type. For example, in this study, the majority of drinking students are enhancement and social motive driven. Individuals who drink for positive motives (enhancement and social motives) are significantly less likely to perceive having a substance problem, therefore their response to interventions may be characterised by a lack of cooperation and engagement (Dow & Kelly, 2013). Thus, such a group would further benefit from personalized feedback about their drinking level and whether it is within safe or harmful level. This feedback could serve as motivation to reducing levels of alcohol use. This is supported by a recent randomised control trial among South African university students who are drinking at hazardous and harmful levels (Pengpid, Peltzer, van der Heever, & Skaal, 2013). The RCT revealed that a 20 minute screening and brief intervention which included giving feedback about their drinking levels and brief counselling about alcohol use reduction was related to decreases in total AUDIT scores at 6 and 12 month follow ups. Thus, at Rhodes such feedback and counselling could be done at termly alcohol abuse screening campaigns or be provided in established campus facilities like the health and counselling centre as part of on-going and routine assessment in indicated cases.

This study highlights that a process of decision making occurs before one uses alcohol. However, it is likely that this process would be biased with more positive or permissive beliefs encouraging drinking. Extrapolating from the cognitive theory and motivational interviewing technique of pros and cons analysis in substance use treatment, creating an externalized pros and cons analysis as part of on-going alcohol campaigns may

counter some of the biased beliefs that are likely to lead to alcohol use. This analysis could highlight some of the social, financial and physical effects while also acknowledging the gains. Socially, campaigns could share that although students may drink for social reasons there is evidence that their drinking is not likely to lead to having new friends (Grant, Brown & Merono, 2013). Financially, providing an estimate of the financial burden of drinking on the students could be useful. For example, given that students mostly drink on the weekend (Friday and Saturday), it could be assumed that the binge drinkers would have at minimum about five drinks on each days (ten drinks the whole weekend). Taking R15 as the price for a standard drink and all things being equal, such students spend about R150 every weekend which equates to R600 a month and about R21600 over the course of a three year bachelor's degree. This last total suffices for tuition for the first year of Rhodes' MA in clinical psychology. Medically, the prevalence of sexual dysfunctions common among male chronic and heavy users of alcohol (Arackal & Benegal, 2007) may speak to the bravado of male students who actually are shown to drink more for enhancement motives. Basically, this externalized pros and cons analysis would aim to show, as relevant and specific as possible, the gains and losses of drinking, particularly heavy drinking.

Despite above implications, the findings of this study need to be considered with the following limitations in mind.

4.6.3 Limitations and recommendations for future research.

Although efforts were made to draw a representative student sample this study oversampled undergraduate students and this could have affected the levels of alcohol use in this study given that undergraduates compared to postgraduates drink more and are more prone to alcohol consequences (Bewick et al., 2008). However, apart from that, participants were representative of the Rhodes student population in respect of race and gender. The

scope of focus on the Rhodes student population limits the generalisability of this study's findings to other universities in South Africa. For this, cross-university comparison studies would give a more accurate account of the alcohol use trend among university students. Additionally, to improve the measure of such variables, longitudinal studies may be more ideal compared to cross-sectional studies. For example, in the USA, the longitudinal Monitoring the Future studies have succeeded in providing the course of alcohol use into university and within university years (Patrick & Schulenberg, 2011). Furthermore, the utilisation of online survey methods may bode well for such longitudinal, inter-university studies.

Another limitation in methodology is regarding the measurement of drinking motives. The DMQ allows for individuals to endorse numerous reasons in all four motive categories and individuals can score similarly on some of the motive categories. For example, someone could score high on both enhancement and social motives, and this could interfere with readily distinguishing homogenous groups. However, this limitation may highlight the fact that drinking motives are interrelated and not static (Cox & Klinger, 1988). Despite this, future research may consider creating these homogenous groups by using the drinking motive that was endorsed more.

Statistical analyses have inherent limitations for example in ascribing causality (Tabachnick & Fidell, 2007). As Toomela (2008, p.245) puts it: "dependence between variables does not imply causal relationship between events represented by the variables and absence of dependence between variables cannot rule out the causal dependence of even presented by the variables". Although prone to similar criticism, mediational and moderator analyses through path analyses and structural modelling which have been utilized in some studies (Read et al., 2003) to capture the complex relationships of variables may be considered for further research in the South African university context.

The assumption of the motivational model of alcohol use is that individuals have introspective ability into their motives. Although there is evidence of the validity of the model (Cooper, 1994; Cooper et al., 1995), implicit cognitions have been posited to show equal promise in explaining substance use and abuse (Stacy & Wiers, 2010). Thus, investigating the implicit cognitions may be another avenue to consider.

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Appendices

Alcohol Survey

Thank you for following the link to this Rhodes University survey. All completed surveys will be entered into a random draw to win a R1000 cash prize. The survey will only take you a few minutes to complete. Your answers are strictly confidential and we will not divulge individual results to anyone. This research project has been approved by the Psychology Department's Research Ethics and Proposal Review Committee. The principal investigators are Professor Charles Young and Mr J. Maphisa Maphisa of the Psychology Department.

1. What is your gender?

- Female
- Male

2. What is your age?

3. What is your race?

Please note that we ask this question because race is a social reality for most South Africans and continues to predict life opportunities. However, we do not subscribe to the racist ideology on which these categories are based.

4. Indicate your level of study

- Year 1
- Year 2
- Year 3
- Honours
- Masters
- PhD

5. What is your student number?

Please note that this will not be used to identify who you are. This will be stored separately from the rest of the data and will only be used to link the data you submit now with follow-up data in a few months time.

6. Where do you currently reside?

- University residence
- In digs (Private accommodation in town)
- With parents or guardians

Alcohol Survey

7. How much pocket money do you have to spend each month?

- R500 or less
- R501- R1500
- R1501- R2500
- R2501-R3500
- R3501- R4500
- R4501 or more

8. Which of the following best describes you regarding alcohol use?

- I have never consumed alcohol
- I have consumed alcohol, but no longer do so
- I do consume alcohol

For questions that follow, a "drink" refers to a standard drink of alcohol as exemplified by the picture below.

 **1 standard drink**



Glass of beer
340 ml / 12 oz
5% alcohol

Glass of wine
140 ml / 5 oz
12% alcohol

Glass of fortified wine
85 ml / 3 oz
20% alcohol

Glass of spirits
45 ml / 1,5 oz
40% alcohol

Glasses of cider
140 ml / 5 oz
6% alcohol

Alcohol Survey

9. How many standard drinks containing alcohol do you think the typical student of your gender has on a typical day when drinking?

- 1 or 2
- 3 or 4
- 5 or 6
- 7, 8, or 9
- 10 or more

10. How often do you think the typical student of your gender has 6 or more drinks on one occasion?

- Never
- Less than monthly
- Monthly
- Weekly
- Daily or almost daily

11. How old were you when you first consumed alcohol to the extent that you became intoxicated?

- | | | |
|---------------------------------------|--------------------------|-----------------------------------|
| <input type="radio"/> Younger than 10 | <input type="radio"/> 13 | <input type="radio"/> 17 |
| <input type="radio"/> 10 | <input type="radio"/> 14 | <input type="radio"/> 18 |
| <input type="radio"/> 11 | <input type="radio"/> 15 | <input type="radio"/> 19 |
| <input type="radio"/> 12 | <input type="radio"/> 16 | <input type="radio"/> 20 or older |

Alcohol Survey

For questions that follow, a "drink" refers to a standard drink of alcohol as exemplified by the picture below.



1 standard drink



Glass of beer
340 ml / 12 oz
5% alcohol

=



Glass of wine
140 ml / 5 oz
12% alcohol

=



Glass of fortified wine
85 ml / 3 oz
20% alcohol

=



Glass of spirits
45 ml / 1,5 oz
40% alcohol

=



Glasses of cider
140 ml / 5 oz
6% alcohol

12. 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

13. 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

Alcohol Survey

14. How often do you have six or more drinks on one occasion ?

- Never
- Less than monthly
- Monthly
- Weekly
- Daily or almost daily

15. 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

16. 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

17. 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

Alcohol Survey

18. 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

19. 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

20. Have you or someone else been injured because of your drinking?

- No
- Yes, but not in the last year.
- Yes, during the last year.

21. 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

Alcohol Survey

22. How many standard drinks containing alcohol do you think the typical student of your gender has on a typical day when drinking?

- 1 or 2
- 3 or 4
- 5 or 6
- 7, 8, or 9
- 10 or more

23. How often do you think the typical student of your gender has 6 or more drinks on one occasion?

- Never
- Less than monthly
- Monthly
- Weekly
- Daily or almost daily

Alcohol Survey

24. Listed below is a list of reasons people sometimes give for drinking alcohol. Thinking of all the times you drank, how often would you say that you drink alcohol for each of the following reasons

	Never/ Almost never	Some of the time	Half of the time	Most of the time	Almost Always/ Always
1. To forget your worries	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
2. Because your friends pressure you to drink	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
3. Because it helps you enjoy a party	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
4. Because it helps you when you feel depressed or nervous____	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
5. To be sociable	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
6. To cheer up when you are in a bad mood	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
7. Because you like the feeling	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
8. So that others won't kid (make fun of) you about not drinking	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
9. Because it's exciting	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
10. To get high	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
11. Because it makes social gatherings more fun	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
12. To fit in with a group you like	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
13. Because it gives you a pleasant feeling	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
14. Because it improves parties and celebrations	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
15. Because you feel more self-confident and sure of yourself	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
16. To celebrate a special occasion with friends	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
17. To forget about your problems	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
18. Because it's fun	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
19. To be liked	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
20. So you won't feel left out	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Alcohol Survey

25. Other reasons (specify):

Sent invitation

- **FROM:**c.young@ru.ac.za via surveymonkey.com
- **DATE:**Friday, May 02, 2014 4:02 PM
- **SENT TO:**997 recipients
- **SUBJECT:**Rhodes university Alcohol Survey
- **MESSAGE:**

Dear Student,

You have been randomly selected to participate in a Rhodes University Alcohol Survey. We - Professor Charles Young and Mr J. Maphisa Maphisa of the Psychology Department - are conducting this survey to get students' perspectives on alcohol use at Rhodes University.

Your participation will involve completing a brief online survey. Individual results will remain strictly confidential. There will be no attempt to link individuals with their results. You are asked to provide your student number only for the purposes of feedback and to be entered into a lucky draw to win a cash prize. Participation is completely voluntary and you have the right to withdraw from the study even after consenting. However, your participation is of great assistance.

The study also forms part of Mr Maphisa's requirements for his Masters of Arts (Clinical Psychology) degree. The project has been approved by the Psychology Department Research Project and Ethics Review Committee, the Humanities High Degrees Committee, the Registrar and the Dean of Students.

All completed surveys will be entered into a random draw to win a R1000 cash prize. To participate, click on the URL link or copy and paste it onto your web address bar [SurveyLink]

Clicking the link will imply consent.

For more information about the study you may contact us on j.maphisa@ru.ac.za or c.young@ru.ac.za.

Thank you in advance.

Regards,

J. Maphisa Maphisa (Student Researcher)

Prof. Charles Young (Supervisor)

NB: This link is uniquely tied to this survey and your email address. Please do not forward this message.

If you do not wish to receive further emails from us, please click the link below, and you will be automatically removed from our mailing list. [RemoveLink]

Maphisa, Jabulani Maphisa (Mr)
P.O. Box 94
Rhodes University Psychology Clinic
Rhodes University
Grahamstown
8 August 2013

Dean of Students
Rhodes University
P.O. Box 94
Rhodes University
Grahamstown

Dear Madam,

Re: Research Request for Student Participants

I humbly put forth my request to conduct research with Rhodes University students.

I am a Masters of Arts (Clinical Psychology) student in the Psychology Department, here at Rhodes University, and interested in conducting a study on Rhodes University students' reasons for alcohol use as a requirement for my degree. The study seeks to explore students' reasons for alcohol use, and investigate the relationship between the reasons and alcohol use and alcohol related consequences. Building on the work that you and others have undertaken in this area of students' alcohol use, the aim of this research project is to hear from students why they use alcohol in order to understand alcohol use. Noting your interest in this area, I will be delighted to share my findings.

The study will use an online survey strategy which will involve inviting students to participate via their student email addresses. Participants will then complete a 10 minute online survey.

This project has been approved by the Psychology Department Research Projects and Ethics Review Committee and the Humanities Higher Degrees Committee. The project is supervised by Prof. Charles Young.

Your approval of the request will be sincerely appreciated.

Yours Sincerely,



Jabulani Maphisa Maphisa

Student Researcher

Student Number: 13M5110

mjmaphisa@gmail.com / j.maphisa@ru.ac.za

+2773 644 0818



Prof. Charles Young

Project Supervisor

Psychology Department

c.young@ru.ac.za

+2746 603 8047

Maphisa, Jabulani Maphisa (Mr)
P.O. Box 94
Rhodes University Psychology Clinic
Rhodes University
Grahamstown
8 August 2013

Registrar
Rhodes University
P.O. Box 94
Rhodes University
Grahamstown

Dear Sir,

Re: Research Request for Student Participants and Student Email Database

I humbly put forth my request to conduct research with Rhodes University students and to have access to student email addresses to invite participants.

I am a Masters of Arts (Clinical Psychology) student in the Psychology Department, here at Rhodes University, and interested in conducting a study on Rhodes University students' reasons for alcohol use as a requirement for my degree. The study seeks to explore students' reasons for alcohol use, and investigate the relationship between the reasons and alcohol use and alcohol related consequences. The aim of the research is to hear from students why they use alcohol in order to understand alcohol use.

The study will use an online survey strategy which will involve inviting students to participate via their student email addresses. Participants will then complete a 10 minute online survey. Thus, access to the student email addresses will enable this data collection process.

This project has been approved by the Psychology Department Research Projects and Ethics Review Committee and the Humanities Higher Degrees Committee. The project is supervised by Prof. Charles Young.

Your approval of the requests will be sincerely appreciated.

Yours Sincerely,



Jabulani Maphisa Maphisa

Student Researcher

Student Number: 13M5110

mjmaphisa@gmail.com / j.maphisa@ru.ac.za

+2773 644 0818



Prof. Charles Young

Project Supervisor

Psychology Department

c.young@ru.ac.za

+2746 603 8047

Date: 08/15/2013 [15:27:51 SAST]
From: Vivian De Klerk <v.deklerk@ru.ac.za>
To: 'jabulani maphisa' <g13m5110@campus.ru.ac.za>
Subject: RE: Research Request for Student Participants

Dear Mr Maphisa

I always support research into patterns of alcohol usage, and am happy to approve your study. I would like to see the result - thanks for offering.

As regards an email survey: you will need the permission of the Registrar for this.

good luck
Vivian de Klerk

Dr Vivian de Klerk, DEAN OF STUDENTS, Rhodes University, PO Box 94,
Grahamstown 6140, South Africa

E-mail: dean.students@ru.ac.za (official)

Tel : +27 [0]46 603 8181

E-mail: v.deklerk@ru.ac.za (personal)

Fax: +27 [0]46 603 7511

-----Original Message-----

From: jabulani maphisa [mailto:g13m5110@campus.ru.ac.za]

Sent: 14 August 2013 05:35 PM

To: v.deklerk@ru.ac.za

Subject: Research Request for Student Participants

Dear Prof. de Klerk,

Kindly find attached a letter requesting to conduct research with Rhodes University students for my Masters of Arts (Clinical Psychology) research project exploring students' reasons for alcohol use.

Your approval of the request will be greatly appreciated.

Regards,
Jabulani Maphisa Maphisa
Student Researcher.

Date: 08/15/2013 [09:09:06 SAST]
From: Dr Stephen Fourie <S.Fourie@ru.ac.za>
To: 'jabulani maphisa' <g13m5110@campus.ru.ac.za>
Cc: dmu@ru.ac.za
Subject: RE: Research Request for Student Participants and Student Email Database

Approved. Please ask the DMU (Data Management Unit) to assist you with contacting students.

Dr Stephen Fourie
REGISTRAR
RHODES UNIVERSITY
+27(46)6038101

-----Original Message-----

From: jabulani maphisa [mailto:g13m5110@campus.ru.ac.za]
Sent: 14 August 2013 17:43
To: s.fourie@ru.ac.za
Subject: Research Request for Student Participants and Student Email Database

Dear Dr. Fourie

Kindly find attached a letter requesting to conduct research with Rhodes University students for my Masters of Arts (Clinical Psychology) research project exploring students' reasons for alcohol use. Furthermore, I humbly request access to student email addresses to invite participants.

Your approval of the request will be greatly appreciated.

Regards,
Jabulani Maphisa Maphisa
Student Researcher.