

Social Cognitive Processes Associated with Underage Drinking and Alcohol-related Harm

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Summary

To investigate the role of social cognitive processes in underage drinking, this thesis presents three studies which examined two social cognitive processes (moral disengagement and anticipated social outcomes) and how they relate to adolescents' engagement in underage drinking and experience of alcohol-related harm. The first study, based primarily on a sample of 636 (386 females) adolescents (14-17 years), developed a reliable and valid Underage Drinking Disengagement Scale (UDDS). Further, moderated mediation analyses revealed that associations between negative evaluations about underage drinking, anticipatory guilt, and engagement in underage drinking, or experience of alcohol-related harm, were weaker at high compared to low scores on the UDDS. In the second study, based on data collected from 651 (329 female) adolescents (12-16 years), two scales assessing the social outcomes adolescents anticipate for drinking alcohol (Drink ASO Scale) and for being drunk (Drunk ASO Scale) were developed. For each scale, factor analyses confirmed separate sub-scales representing anticipated social outcomes for mothers, fathers, and peers. Additionally, results revealed that anticipation of less social censure for drinking alcohol related to greater engagement in underage drinking, while for underage drinkers, less social censure for being drunk more strongly related to greater experience of alcohol-related harm. In the third study, participants, derived from the same sample as study two, were 347 (161 female) underage drinkers who were assessed at three time points, eight months apart. Latent growth modelling revealed that, across time, underage drinking disengagement and anticipated social outcomes for being drunk independently contributed to an increase in adolescents' alcohol use and experience of alcohol-related harm. The findings from this thesis highlight the importance of understanding how adolescents self-regulate their drinking and ways that such self-regulation may be disengaged. Further, this thesis highlights the self-regulatory influences of parents and peers on adolescents' use of alcohol and experience of alcohol-related harm.

Certificate by Candidate

I certify that this thesis is all my own work and has not been submitted for a higher degree to any other university or institution other than Macquarie University. Any help or assistance I have received in my research or in the preparation of the thesis itself has been properly acknowledged. Approval for all aspects of the research presented in this thesis was obtained from the Macquarie University Human Research Ethics Committee (reference numbers: 5201000186 and 5201001460). Approval from the Catholic Education Office of Parramatta, Broken Bay, Canberra-Goulburn, Wagga Wagga and Wollongong were also obtained.

A handwritten signature in black ink, appearing to read 'Catherine Quinn', with a large, stylized flourish at the end.

Catherine Quinn (40537366)

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Chapter 1
General Introduction

Introduction

Alcohol misuse can result in severe health, social, and financial burdens to the individual, families, communities, and wider society (Institute for Health Metrics and Evaluation, 2013; Laslett et al., 2010; Lim et al., 2012; Manning, Smith, & Mazerolle, 2013; Rehm et al., 2009; World Health Organization [WHO], 2011). For adolescents in particular, there are concerns that the neurotoxic effects of alcohol may adversely affect the maturing brain (Bava & Tapert, 2010; Clark, Thatcher, & Tapert, 2008; Crews, He & Hodge, 2007; Crews, Mdzinarishvili, Kim, He, & Nixon, 2006). Early initiation of alcohol consumption and heavy alcohol use during adolescence places youths at a risk of long-term alcohol abuse and dependence (Buchmann et al., 2009; Englund, Egeland, Oliva & Collins, 2008; Grant & Dawson, 1997; Guttmanova et al., 2011; Pitkänen, Kokko, Lyyra & Pulkkinen, 2008; Warner, White & Johnson, 2007). Moreover, in the short-term, many adolescents who consume alcohol experience harms as a result of their drinking including physical illness or injury, engagement in high risk sexual activity, academic underachievement, violence, and interpersonal problems (Bradley & Greene, 2013; Chikritzhs, Pascal, & Jones, 2004; Fergusson & Lynskey, 1996; Mason et al., 2010; Stafström, 2007; White & Bariola, 2012). These consequences can result in significant long-term difficulties such as disability, teenage pregnancy, sexually transmitted disease, and incarceration (Cauffman et al., 2007; Cavazos-Rehg et al., 2011b; Kelley, Borwaski, Flocke, & Keen, 2003; Jernigan, 2001).

In an attempt to reduce the wide spread health and social harms attributed to alcohol, drinking age laws and public policies have been enacted (WHO, 2007). Additionally, numerous interventions have been implemented, with varying levels of success, endeavouring to delay the age at which adolescents first consume alcohol and reduce the harms commonly experienced by adolescent drinkers (Foxcroft, Ireland, Lowe, & Breen, 2002; Foxcroft & Tsertsvadze, 2011; Jones et al., 2007; Spoth, Greenberg, & Turrise, 2008; Teesson, Newton, & Barrett, 2012). While focusing on the personal factors that may explain adolescent alcohol

consumption, the social context in which alcohol use occurs has been a key consideration for interventions and theories (Foxcroft & Tsertsvadze, 2011; Petraitis, Flay, & Miller, 1995; Teesson et al., 2012). Social cognitive theory (Bandura, 1986) provides a comprehensive model of human functioning and has been successfully applied to a wide variety of behaviours. Within this theory, the reciprocal interplay between personal factors and the social influences of families, peers, schools, communities, and the media are considered. Using this comprehensive model of human functioning, the current thesis focuses on personal and social processes that may explain adolescents' alcohol use and experience of alcohol-related harm.

Prior to outlining the present research, this introduction first provides a broad overview of adolescents' underage drinking. Underage drinking laws are considered with a particular emphasis on drinking laws in Australia. Next, the developmental course of underage drinking is reviewed followed by an investigation of gender differences in underage drinking. Cross-country comparisons of adolescents' alcohol use are followed by an exploration of the social setting in which underage drinking occurs. Factors related to underage drinking are then examined. A review of theoretical perspectives follows. Prominent theories that have been advanced to explain underage drinking and adolescents' antisocial behaviour are assessed, including theory of reasoned action (Fishbein & Ajzen, 1975), theory of planned behaviour (Ajzen, 1985), social norm theory (Perkins, 2003) and problem behaviour theory (Jessor & Jessor, 1977) are discussed. A more expansive examination of social cognitive theory (Bandura, 1986) follows. Finally, the present research is described¹.

¹ This thesis is presented as a non-traditional research thesis by publication format as outlined by Macquarie University Higher Degree Research Unit. This format necessitates the preparation of papers which may be submitted for publication. The current thesis is comprised of five chapters consisting of three individual papers prepared for publication. As a result, this structure necessitates some repetition across chapters.

Background Overview of Underage Drinking

Underage Drinking Laws

There is no uniform worldwide definition of underage drinking. Although the term legal drinking age predominately refers to the age at which alcohol can be purchased and publicly consumed, legal drinking ages vary considerably between countries, with an age range between 16 to 21 (WHO, 2004), with the most common minimum drinking age being 18 years (International Center for Alcohol Policies, 2014). In Australia, all states prohibit the sale or supply of alcohol to persons under 18 years on licensed premises; minors are prohibited from purchasing, possessing, or consuming alcohol on licensed premises or in public places; and in some jurisdictions only parents, guardians, or persons authorised by parents or guardians, are permitted to supply alcohol to minors on private premises (Roche, Steenson & Andrew, 2013). Similar to other countries (Donaldson, 2009; British Columbia Ministry of Health Services, 2010, 2010), the Australian National Health and Medical Research Council (NHMRC, 2009) has also recently released a guideline emphasising that children under 15 should not consume alcohol and that the safest option for young people under 18 is to delay alcohol initiation as long as possible. For this reason, the following review of the developmental course of underage drinking, gender and cross-cultural differences in underage drinking, the social setting in which underage drinking occurs, and factors relating to underage drinking, will predominately focus on adolescents under 18 years of age.

Developmental Course of Underage Drinking

In the following section, the developmental course of underage drinking is examined in three parts. Initial engagement in underage drinking, including sipping of alcohol, consuming full standard drinks, and progression to more frequent alcohol consumption, is discussed. Next, heavy episodic drinking is defined and then tracked over the course of adolescence. Finally, adolescents' experience of harms as a consequence of their drinking is examined.

Underage drinking. Investigation of alcohol use in early childhood is rare (Zucker, Donovan, Masten, Mattson, & Moss, 2008). An analysis of national and state-wide studies conducted in the USA, indicated that in early childhood, sipping or tasting alcohol appears to be more common than consuming full drinks of alcohol (Donovan, 2007). Donovan and Molina (2008) found that while only 7% of 10 year olds had consumed a full glass of alcohol, 48% had a sip or taste of alcohol, predominately in family contexts. Sipping or tasting of alcohol by age 10 has been shown to predict progression to consumption of full standard drinks at age 14 (Donovan & Molina, 2011). However, there is limited further information into the impact sipping and tasting have on the developmental course of alcohol consumption (Ward, Snow, & Aroni, 2010).

Beyond sips and tastes, consumption of full standard drinks of alcohol commonly occurs in early to mid-adolescence (Australian Institute of Health and Welfare [AIHW], 2011; Gilligan, Kypri & Lubman, 2012). Despite increasing trends towards abstinence in Australian populations (AIHW, 2011; White & Bariola, 2012), the National Drug Household Survey found that 22.8% of 12-15 year olds and 68.4% of 16-17 year olds had consumed a full serve of alcohol in their lifetime, with the average age of initiation for 14-19 year old drinkers being 14.8 years (AIHW, 2011). Longitudinal data, from the Australian Temperament project, similarly show a sharp escalation in alcohol use during adolescence, with 25% of 13-14 year olds having consumed alcohol in the past month, rising to 60% when these adolescents were 15-16 year olds and 85% when they were 17-18 years old (Smart, Toumbourou, Sanson, & Little, 2013; Smart et al., 2003).

Recent research focusing on differences in developmental trajectories of adolescent alcohol use has found that while alcohol consumption generally increases with age, this trajectory varies between adolescents (Alati et al., 2014; Chan et al., 2013; Danielsson, Wennberg, Tengstrom, & Romelsjo, 2010; Duncan, Gau, Duncan, & Strycker, 2011; Shamblen, Ringwalt, Clark, & Hanley, 2014; Shin, Miller, & Teicher, 2013; Weichold,

Wiesner, & Silbereisen, 2014). For instance, Chan et al. (2013) found that most adolescents changed their alcohol use between Grade 6 and 11, following three different patterns: slowly increasing their alcohol use (67.3%), steeply escalating their use (8%) or reducing their use from initially high levels (3%). A smaller proportion of students maintained a consistent level of alcohol use (13.7% abstinence and 8% stable moderate drinkers).

Heavy episodic drinking. A specific focus on adolescent engagement in heavy episodic drinking, often termed risky drinking or binge drinking, has also received considerable attention. Heavy episodic drinking refers to the consumption of large amounts of alcohol in short periods of time with the main aim of becoming intoxicated (Keyes & Miech, 2013). It is considered particularly problematic because it heightens the risk of a person experiencing harm as a consequence of their drinking (WHO, 2011). In USA and European studies, heavy episodic drinking, usually termed binge drinking, refers to the consumption of five or more alcoholic beverages on a single occasion, since this amount brings an adult's blood alcohol concentration to 0.08 grams (National Institute of Alcohol Abuse and Alcoholism [NIAAA], 2004; Johnston, O'Malley, Bachman, & Schulenberg, 2012; Hibell et al., 2012). Similarly, in Australian studies, heavy episodic drinking, commonly termed risky drinking, refers to the consumption of more than four standard drinks on a single occasion, since this has been found to double an adult's risk of injury (AIHW, 2011; NHMRC, 2009; White & Bariola, 2012).

Similar to levels of consumption, national Australian studies indicate that during adolescence risky drinking increases with age. The 2010 National Drug Strategy Household Survey found that 5.2% of 12-15 year olds, compared to 30.2% of 16-17 year olds had consumed more than four drinks on a single occasion at least monthly (AIHW, 2011). Despite differences in methodology, the 2011 Australian School Students' Alcohol and Drug Survey of nearly 25,000 12-17 year olds, found similar increases in heavy episodic drinking with 3% of 12-15 year olds compared to 16% of 16-17 year olds having consumed more than four

drinks on a single occasion in the past seven days (White & Bariola, 2012). Heavy episodic drinking tends to peak in early adulthood with 58.1% of 18-19 year olds and 46.2% 20-29 year olds consuming more than four drinks on a single occasion at least monthly (AIHW, 2011).

Alcohol-related harm. Current assessments of heavy episodic drinking, although widely applied to adolescents, are measures originally created for adults (Hayes, Smart, Toumbourou, & Sansons, 2004). Adolescents' inexperience with alcohol and physical immaturity arguably increases their susceptibility to the physical harmful effects of alcohol (Hayes et al., 2004). Indeed, adolescent risky drinkers report losing their memory after drinking more than do adults, with 37.7% of 12-17 year olds reporting memory loss, compared to the 14.8% average for persons older than 18 years of age (AIHW, 2011).

Beyond adolescents' engagement in heavy episodic drinking, problematic or harmful drinking has also been directly assessed by measuring the negative consequences adolescents experience as a result of their drinking. These negative consequences, commonly termed alcohol-related harms, include memory loss, physical illness, interpersonal problems with friends and family, engagement in violent acts, sexual harassment, property damage, school problems and problems with the police (Hibbert, Caust, Patton, Rosier, & Bowes, 1996; McBride, Farrington, Midford, Meuleners, & Phillips, 2004; White & Labouvie, 1989).

Data from the 2011 Australian School Students' Alcohol and Drug Survey show that, similar to increases in risky drinking, experience of alcohol-related harm increases with age (White & Bariola, 2012). Within the group of past week drinkers, 54% of 12-15 year olds had experienced one or more alcohol-related harms as a consequence of their drinking compared to 69% of 16-17 year olds (White & Bariola, 2012).

Gender Differences in Underage Drinking

In adult society there is consistent evidence that men consume more alcohol and experience more alcohol-related harm than women (Bloomfield, Gmel, Neve, & Mustonen,

2001; Wilsnack, Volgelantz, Wilsnack, Harris, 2000). However, many nationally representative surveys indicate that this gender difference is small or non-existent in the 12-17 year age group (AIHW, 2011; Henderson, Nass, Payne, Phelps, & Ryley, 2013; Hibell et al., 2012; Substance Abuse and Mental Health Services Administration [SAMHSA], 2010). There is no established gender difference in the age at which adolescents first consume alcohol (Donovan, 2004), or in the level of harm experienced by adolescent males and females (Hibell et al., 2012; White & Bariola, 2012). Gender differences have been shown to exist for the amount of alcohol adolescents consume, with adolescent males predominantly consuming greater quantities of alcohol on single drinking occasions than adolescent females (Hibell et al., 2012; Johnston et al., 2012; White & Bariola, 2012). Yet, this difference appears to be decreasing over time. For instance, results from the 2011 European School Survey Project on Alcohol and Other Drugs, showed that while the average number of adolescent females engaging in binge drinking had increased from 29% in 1995 to 38% in 2011, the average number of adolescent males engaging in binge drinking remained relatively stable rising from only 41% to 43% (Hibell et al., 2012).

Cross-country Differences in Underage Drinking

It is difficult to directly compare differences between countries in levels of adolescent drinking due to differences in methodological assessments, sampling and age groups used by different countries (Pirkis, Irwin, Brindis, Patton, & Sawyer 2003). Matched cross-cultural comparisons between the USA and Australian samples of students have shown higher rates of alcohol use for Victorian (Australia) than Washington (USA) students aged 12-17 (Beyers, Toumbourou, Catalano, Arthur & Hawkins, 2004). One study found that Victorian students were two to three times more likely to report using alcohol, and by Grade 9 (15 years), two to four times more likely to report heavy episodic drinking and injuries as a result of drinking, than were students from Washington (Toumbourou, Hemphill, McMorris, Catalano, & Patton, 2009). However, for those students who had already started drinking alcohol, escalation to

misuse of alcohol and levels of alcohol-related harm experienced were comparable between the two countries (Evans-Whipp, Plenty, Catalano, Herrenkohl, and Toubmourou, 2013; Toumbourou et al., 2009). Additionally, cross-country studies, comparing 36 European countries to the USA have demonstrated that, with the exception of Iceland, the USA has lower rates of lifetime alcohol use (56% vs 70% or more), lower rates of alcohol use in the past 12 months, and lower rates of heavy episodic drinking (16.2 years vs 15.8 years; Hibell et al., 2012).

Cross-country comparisons between Eastern European and Western countries have also revealed a cultural convergence in levels of subjective experience of drunkenness among 15 year old youth (Kuntsche et al., 2011). While the level of drunkenness has been shown to be lower in Eastern European than Western countries, comparisons of 1997/1998 and 2005/2006 surveys indicated that the level of drunkenness decreased in 13 of the 16 Western countries examined, by an average of 25%, but increased by an average of 40% in the seven participating Eastern European countries.

Social Setting

Most adolescents obtain alcohol from friends, acquaintances or parents, and predominantly consume alcohol in a private setting, at someone else's home or their own home in the presence of two or more people (AIHW, 2011; Henderson et al., 2013; SAMHSA, 2010; White & Bariola, 2012). The number of Australian parents regularly buying alcohol for their children in 2010 has decreased since 2007, from 43% to 30% for 12-15 year olds and from 34% to 23% for 16-17 year olds (AIHW, 2011). However, current underage drinkers are still most likely to obtain alcohol from a parent or friend than any other source (White & Bariola, 2012).

Factors Relating to Underage Drinking

Multiple factors have been raised as possible contributors to underage drinking. In this section, adolescents' underage drinking will be examined first within a broader sociostructural

environment, in which legal sanctions and public policies exist with the intent to regulate underage drinking and its associated harms. Within adolescents' immediate social environment, the social influence of parents and peers will then be reviewed. Finally, beyond external influences and controls, personal factors relating to underage drinking will be examined. Since there is a paucity of research specifically examining factors related to adolescents' experience of alcohol-related harm, the majority of the research reviewed will focus primarily on adolescents' initiation of alcohol and alcohol consumption.

Sociostructural influences. Higher minimum legal drinking ages have been associated with lower underage drinking levels and alcohol-related problems (Wagenaar & Toomey, 2002). Minimum age policies have been found to be most effective when they are enforced and perceived as legitimate in the wider community (Lipperman-Kreda, Grube, & Paschall, 2010). In particular, enforcement against retailers has been shown to reduce sales to minors by 30-35% in one study (Grube, 1997).

Alcohol taxation has also been shown to reduce underage drinking and alcohol consumption in the wider community. A meta-analysis of 1003 estimates from 112 studies demonstrated that increased prices reduced drinking of all types of beverages and across all populations, both light and heavy drinkers (Wagenaar, Salois, & Komro, 2009). Moreover, tax reductions have been related to increases in underage drinking. For instance, following tax reduction on spirits in the Netherlands in 2003 (45% reduction and 25% reduction on cheaper brands) there was a 26% increase in hospital admissions for acute alcohol intoxication among person 15 years and younger (Bloomfield, Rossow, & Norstrom, 2009).

Many countries also implement public health policies (Grube & Nygaard, 2005). These public health policies are often reflected in the types of school based interventions implemented. For instance, USA interventions predominately focus on reducing the amount of alcohol adolescents consume by adopting an abstinence based approach (Beyers et al., 2004; Evans-Whipp et al., 2013). In contrast, Australia has historically maintained a 'harm

reduction policy', with a primary goal of reducing alcohol-related harms, rather than specifically reducing alcohol use (McMorris, Catalano, Kim, Toumbourou, Hemphill, 2011; Mason et al., 2011). As stated earlier, matched cross-cultural comparisons have shown considerably higher rates of alcohol use for Australian than USA students, but comparable experiences of alcohol-related harm for those students who do drink (Beyers et al., 2004; Evans-Whipp et al., 2013; Toumbourou et al., 2009). A longitudinal study comparing two matched schools from the USA and Australia, suggested that abstinence based policies are effective in early adolescence at preventing drinking, and reducing engagement in heavy episodic drinking (Evans-Whipp et al., 2013). Once adolescents have started drinking, harm minimisation policies appear to be most effective in reducing the alcohol-related harms adolescents experience as a consequence of their drinking (Evans-Whipp et al., 2013).

Social Influences. Beyond sociostructural factors related to adolescents' alcohol use, within adolescents' immediate social environment, parents and peers have been identified as key socialising influences (Collins, Maccoby, Steinburg, Hetherington, & Bornstein, 2000) who have a significant impact on adolescents' alcohol use (Bahr, Hoffman & Yang, 2005; Ryan, Jorm & Lubman, 2010). Therefore, in considering social influences on underage drinking, parental and peer factors are examined below.

A systematic review of 77 longitudinal studies found that parental alcohol consumption, limiting availability of alcohol to the child, parental monitoring, a good parent-child relationship, parental involvement, and general communication were all associated with delaying early alcohol initiation and reducing levels of later drinking by adolescents (Ryan et al., 2010). Levels of later drinking were also reduced through parental support and parental disapproval of drinking (Ryan et al., 2010). Specifically, adolescents who anticipate disapproval from their parents have been shown to consume less alcohol underage and experience fewer alcohol-related harms than those who anticipate parental approval (Aas & Klepp, 1992; Blobaum & Anderson, 2006; Ford & Hill, 2012; Kristjansson, Sigfusdottir,

James, Allegrante, & Helgason, 2010; Martino, Ellickson, & McCaffrey, 2009; Nash, McQueen, & Bray, 2005; Simons-Morton, 2004; Von Eye, Bogar & Rhodes, 2006). Although there is some evidence supporting the role of parental rules and alcohol-specific communication in increasing abstinence and reducing alcohol use (Koning, Engels, Verdurmen, & Vollebergh, 2010; McKay, Sumnall, Goudie, Field, & Cole, 2011; Van Der Vorst, Engels, Dekovic, Meeus, & Vermulst, 2007), in Ryan et al.'s (2010) systematic review, alcohol-specific communication and alcohol-related rules were not significantly associated with alcohol initiation or alcohol consumption after accounting for other parental factors noted above.

In addition to the influence of parents, there is also considerable evidence highlighting the role of the peer group in adolescents' use and misuse of alcohol (Allen, Donohue, Griffin, Ryan, & Turner, 2003; Bauman, & Ennett, 1996). Adolescents have been shown to consume more alcohol in larger peer groups (Anderson & Brown, 2011), and greater tolerance of substance use among school peers has been related to greater alcohol and substance use by adolescents (Kumar, O'Malley, Johnston, Schulenberg, & Bachman, 2002). Moreover, adolescents who associate with deviant peers (Allen, Chango, Szwedlo, Schad, & Marston, 2012; Light, Greenan, Rusby, Nies, & Snijders, 2013; Trucco, Colder, & Wieczorek, 2011) or who perceive more of their friends and peers to be drinkers (Anderson & Brown, 2011; Danielsson et al., 2010; Kuntsche, Kuendig & Gmel, 2008; Li, Pentz & Chou, 2002; Musher-Eizenman, Holub, & Arnett, 2003; Reboussin, Song, Shrestha, Lohman, Wolfson, 2006; Simons-Morton, 2004) consume more alcohol themselves. Adolescents have also been found to consume more alcohol if they anticipate approval, respect or acceptance from their peers for drinking than if they anticipate disapproval (Kristjansson et al., 2010; Shamblen et al., 2014; Simons-Morton, 2004; Tucker, Ellickson & Klein, 2008).

Personal factors. Personality traits, such as sensation seeking, impulsivity, anxiety sensitivity, and depression proneness have all been associated with adolescents' underage

drinking and experience of alcohol-related harm (Conrod, Castellanos-Ryan, & Mackie, 2011; Cooper, Wood, Orcutt, & Albino, 2003; Stautz & Cooper, 2013; Zuckerman & Kuhlman, 2000). Moreover, adoption, twin and extended family design studies provide evidence that alcohol dependence in adulthood has a strong heritability component; however, for younger age groups, and particularly for alcohol initiation, environmental factors appear to moderate the effect of genetic influences and more strongly relate to initiation and use (Lynskey, Agrawal, & Heath, 2010; Rhee et al., 2003; Young, Rhee, Stallings, Corley, & Hewitt, 2006). Additionally, cognitive processes have been shown to be more proximally linked to alcohol-related behaviour, mediating personality and genetic factors (Gullo, Dawe, Kambouropoulos, Staiger & Jackson, 2010; Hendershot et al., 2009; Samek, Keyes, Iacono & McGue, 2013).

Drinking motives, including the motive to drink to enhance positive experiences, to cope, to conform, or to increase sociability have been shown to mediate the relationship between genetic and temperamental factors and young people's alcohol use and alcohol-related consequences (Mackie, Conrod, Rijdsdijk, & Eley, 2011; Willem, Bijttebier, Claes, & Uytterhaegen, 2012; Windle & Windle, 2012). Additionally, alcohol expectancies, which refer to the effects attributed to alcohol that a person expects to experience when drinking (Brown, Creamer, & Stetson, 1987; Brown, Goldman, Inn, & Anderson, 1980) have also been shown to mediate the relationship between genetics (Hendershot et al., 2009) and temperament (Gullo et al., 2010) on the one hand and alcohol use on the other, with more positive expectancies relating to greater alcohol use and experience of harms. Adolescents who hold lower beliefs in their ability to refuse alcohol (Flory, Lynam, Milich, Leukefeld, & Clayton, 2004; Shamblen et al., 2014; Watkins, Howard-Barr, Moore & Werch, 2006), or who hold positive attitudes about alcoholic drinks (Roek, Spijkerman, Poelen, Lemmers, & Engels, 2010) have also been shown to have a greater propensity to drink underage and engage in heavy drinking.

A lack of traditional moral and social values has also been found to relate more

strongly to adolescents' substance dependence than genetically based inhibition and impulse control (Vrieze, Vaidyanathan, Hicks, Iacono, McGue, 2014). Tolerant attitudes towards deviant behaviour, lower acceptance of conventional beliefs and lower guilt or remorse for delinquent behaviour have all been associated with adolescent engagement in underage drinking and rule violating behaviour (Barnes, Welte, Hoffman, & Dintcheff, 1999; Barnes, Welte, Hoffman, & Dintcheff, 2005; Brook, Whiteman, Gordon, Nomura, & Brook, 1986; Cohn, Bucolo, Rebellon, & Van Gundy, 2010; Costa, Jessor, & Turbin, 1999; Durkin, Blackston, Dowd, Franz, & Eagle, 2009). Additionally, adolescents who believe underage drinking and substance use is wrong engage in less underage drinking and substance use (Abide, Richards, & Ramsey, 2001; Amonini & Donovan, 2006; Kuther & Higgins-D'Alessandro, 2000; Nucci, Guerra, & Lee, 1991).

Recently adolescents' justifications and excuses for transgressive behaviour have also been examined, as well as the way in which these justifications relate to adolescents' alcohol use (Bandura, Caprara, Barbaranelli, & Regalia, 2001; Newton, Barrett, Swaffield, & Teesson, 2014; Newton, Havard, & Teesson, 2012). Moral disengagement refers to the process whereby transgressive behaviour is justified or excused, enabling its performance free of self-censure (Bandura, 2002; Bandura, Barbaranelli, Caprara, & Pastorelli, 1996). Investigations of underage drinking as a composite of rule-breaking behaviours have shown that adolescents who justify or excuse transgressive behaviour engage in more rule-breaking behaviour than those who do not justify transgressive behaviour (Bandura et al., 1996; Bandura et al., 2001; Hyde, Shaw & Moilanen, 2010; Kiriakidis, 2008; Pelton, Gound, Forehand & Brody, 2004). Additionally, the more that young adolescents justify and excuse transgressive behaviour, the more likely they are to drink underage and engage in risky drinking (Newton et al., 2013; Newton et al., 2012).

Summary of Underage Drinking Overview

This brief overview of underage drinking has shown that despite legal restrictions and

public policies attempting to limit adolescents' alcohol use, many adolescents begin drinking alcohol by mid-adolescence, and escalate their alcohol use throughout adolescence. Of particular concern are escalations in risky drinking and in adolescents' experience of alcohol-related harm. Drinking initiation and experience of alcohol-related harm is comparable for adolescent males and females, and predominately occurs in social setting with parents and peers present. Moreover, there appears to be cross-country differences in rates of underage drinking, suggesting that social factors are likely to contribute to adolescents' underage alcohol use.

The examination of factors related to underage drinking revealed that broad sociostructural factors including minimum age legislation, alcohol taxation, and public policies are all related to underage drinking. Adolescents are also influenced by their immediate social environment, with parental factors, such as parental alcohol consumption, supply of alcohol and parental approval of drinking; and peer factors, such as peer alcohol use and approval of drinking, all relating to adolescents' engagement in underage drinking and alcohol consumption. Personal genetic and biological factors, such as sensation seeking, have also been related to underage drinking; however, they are often mediated by cognitive factors, such as drinking motives, alcohol expectancies and moral values. Other personal factors related to adolescents use of alcohol included adolescents' justifications and excuses for transgressive behaviour.

Theoretical Perspectives on Underage Drinking

To understand the development and occurrence of underage drinking, numerous theories have been advanced, some specially focusing on underage drinking and others on underage drinking within the broader context of antisocial, problem or transgressive behaviour. One way to differentiate the diverse array of theories is through the emphasis they place on personal and social factors that are posited to contribute to adolescents' underage drinking. Some theories focus predominately on personal factors, including biological

dispositions and cognitive processes, whereas others focus primarily on environmental factors, including sociostructural influences and the influence of parents and peers, and still others take a more integrated approach and examine the joint influence of personal and social factors on adolescent behaviour. In this next section prominent theories of underage drinking are examined, followed by a more expansive examination of social cognitive theory, which provides the theoretical basis for the research conducted for this thesis.

Cognitive-Affective Theories

Theory of reasoned action. The theory of reasoned action (see Figure 1) is grounded in the premise that people make rational decisions that guide their behaviour (Ajzen & Fishbein, 1980; Fishbein & Ajzen, 1975). The theory of reasoned action posits that, based on observation or information received from external sources, people form beliefs about the attributes of an object, the consequences of behaviour in relation to that object, and the normative nature of the behaviour (Fishbein & Ajzen, 1975). Attitudes are formed based on consequence beliefs. Attitudes are a combination of the evaluation of the costs/benefits of the behaviour and the affective value placed on these costs/benefits. Subjective norms are based on beliefs regarding the normative nature of the behaviour, and one's motivation to comply with these norms (Fishbein & Ajzen, 1975). These attitudes and subjective norms lead to a set of intentions and it is these intentions that immediately predict behavioural performance (Ajzen & Fishbein, 1980).

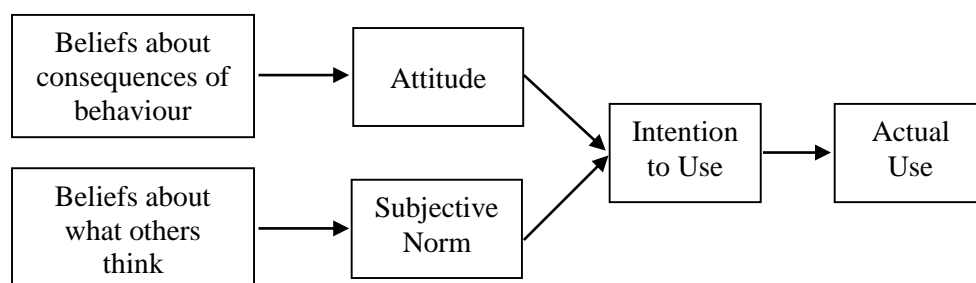


Figure 1. Theory of reasoned action.

In support of the theory of reasoned action, attitudes and subjective norms have been related to intentions and subsequent alcohol use in samples of adolescents and underage

college students (Morrison et al., 2002; O'Callaghan, Chant, Callan, & Baglioni, 1997; Schlegel, Crawford, & Sanborn, 1977). However, the theory of reasoned action presumes that behaviour is completely under an individual's volitional control and that intentions are the only immediate predictors of behaviour (Fishbein & Ajzen, 1975). Ajzen (1985; Ajzen, 2005; Ajzen & Madden, 1986) postulated that even if an individual has the intention to perform a behaviour, they will be unable to do so if they do not have the resources or abilities, or if they are faced with obstacles or impediments (Ajzen, 2005; Ajzen & Madden, 1986). Consequently, Ajzen (1985) extended the theory of planned behaviour to incorporate the concept of perceived behavioural control. This new theory was named the theory of planned behaviour.

Theory of planned behaviour. The theory of planned behaviour includes perceived behavioural control as a third pathway to intentions and behaviour (Ajzen, 1985). The theory of planned behaviour assumes that a person with more resources and abilities and less obstacles and impediments will have greater perceived control and therefore have higher intentions to perform a behaviour and higher behavioural performance (Ajzen, 2005). There is mixed evidence regarding the additive value of perceived behavioural control to subjective norms and attitudes. Some studies demonstrate that perceived behavioural control to use or refuse alcohol does significantly predict alcohol use over and above subjective norms and attitudes (Cooke, Sniehotta, & Schuz, 2007; Collins & Carey, 2007; Johnston & White, 2003; Marcoux & Shope, 1997; Schlegel, d'Avernas, Zanna, DeCourville, & Manske, 1992), while others have found a non-significant relationship between perceived behavioural control and alcohol use (Laflin, Moore-Hirschl, Weis, Hayes, 1994). Examining the joint contribution of subjective norms, attitudes and perceived behavioural control, a meta-analysis from a database of 185 studies across a wide range of behaviours, found that the attitudes, subjective norms and perceived behavioural control explained 39% of the variance in intention and, with intentions, explained 27% of the variation in behaviour (Armitage & Conner, 2001).

Despite attitudes, subjective norms, and perceived control to use or refuse alcohol, being strong predictors of alcohol use, the theory of planned behaviour proposes that these are the only factors immediately relating to alcohol use (Ajzen, 2005) and does not explain why other personal factors, such as moral norms or tolerance to deviant behaviours, have also been related to alcohol use over and above subjective norms and attitudes (Conner & Armitage, 1998; Schlegel, d'Avernas, Zanna, DiTecco, & Manske, 1987). Moreover, the theory of planned behaviour does not specify how beliefs are formed or influenced by other social and personal factors or identify what kinds of interventions may be effective in altering or shaping beliefs, attitudes, and subjective norms (Ajzen, 2005). It has been argued, however, that the theory of reasoned action and theory of planned behaviour do allude to ways that underage drinking may be prevented. For example, increasing adolescents' understanding of the aversive consequences and health dangers of alcohol use and enhancing the perceived costs of substance use have been advanced as possible ways to reduce the weight of perceived benefits of adolescents' substance use (Petraitis et al., 1995). However, simply increasing adolescents' knowledge of the dangers of alcohol use has been shown to have a limited effect on their alcohol use (Lemstra et al., 2010; NIAAA, 2004/2005), thereby questioning whether adolescents' behaviour is indeed guided mainly by rational decision making (Sharma & Amar, 2007) and highlights the need to investigate other factors that may influence adolescents' underage drinking.

Social Norms Theory

Social norms theory is based on the premise that individuals express or inhibit behaviour with the intent of conforming to perceived social norms (Berkowitz, 2003). Social norms theory adopts an intervention focus, arguing that altering adolescents' misperceptions of the prevalence of underage drinking (descriptive norm) and its acceptability (injunctive norm) will alter adolescents' drinking behaviour (McAlaney, Bewick, & Hughes, 2011; Perkins, 2003). This theory was developed after Perkins and Berkowitz (1986) discovered that

college students misperceived their social environment, with most college students holding moderate attitudes towards alcohol use, but misperceiving a more liberal attitude among their peers (Perkins & Berkowitz, 1986). Based in part on attribution theory, social norm theory postulates that misperceptions of peers' use of alcohol and attitudes towards alcohol are formed because people have a tendency to think that observed behaviour is predictive of general behaviour (Perkins, 2003). Therefore, if an adolescent sees a peer use alcohol or become intoxicated, it is believed to be a common occurrence (Perkins, 1997). According to social norm theory, misperceptions are also influenced by excessive media reporting of adolescent problem behaviour and underreporting of pro-social behaviour, exposure to young people boasting or joking about their alcohol use, and the observation of drunkenness being salient and therefore particularly memorable (Linkenbach, Perkins, & DeJong, 2003; Perkins, 1997).

Although there is consistent evidence that college students and adolescents frequently misperceive peers as consuming alcohol more frequently and in greater quantities than peers actually report (Aas & Klepp, 1992; Agostinelli & Grube, 2005; Borsari & Carey, 2006; Perkins & Berkowitz, 1986), abstainers and adolescents drinking repeatedly till drunk have been shown to have accurate views of peer drinking, suggesting that more than mere misperception predicts adolescents' alcohol use (Lintonen & Konu, 2004). Moreover, college students and adolescents have more accurate views of their friends' alcohol use than their broader peer group (Perkins, 1997), and are most strongly influenced by the drinking of their closest friends (Anderson & Brown, 2011; Borsari & Carey, 2006; Song Smiler, Wagoner, & Wolfson, 2012). Consequently, manipulation of collective peer norms, as is proposed by social norm theory, may be less effective if actual behaviour of adolescents and their friends is not also directly altered (Juvonen, Martino, Ellickson, & Longshore, 2007).

A strength of social norms theory is that it emphasises the importance of adolescents' perceptions of their social environment and the impact perceptions have on their behaviour.

Social norms theory primarily focuses on the peer group, however, and does not account for the role of parents or broader environmental influences on adolescents' alcohol use, nor does it account for ways in which adolescents themselves may alter or influence their environment and behaviour.

Theory of Problem Behaviour

The theory of problem behaviour is a multivariate theory aimed at explaining the co-occurrence of problem behaviour (Jessor & Jessor, 1977). Problem behaviour is defined as those behaviours engaged in by youth, deemed socially inappropriate or undesirable, that deviate from institutionalised or widely shared social and legal norms and that may warrant the exercise of some form of social control, such as mild disapproval or more extreme incarceration (Jessor & Jessor, 1977). Having its origins in Rotter's (1954) social learning theory and Merton's (1957) approach to the social environment, problem behaviour theory argues that behaviour is explained by personality, environment, and behaviour systems (Jessor & Jessor, 1977). The behaviour system comprises both socially acceptable behaviour, such as church attendance and academic success, and problem behaviour, such as underage drinking and delinquency. The personality system includes value and expectancy goals for academic achievement and independence, personal belief structures, orientation towards self or society, and tolerance of deviant behaviour (Jessor & Jessor, 1977). Finally, the environmental system is separated into remote aspects of social structure, including socio-economic status, family cohesion and media influences, and the perceived environment, which is the environment as it has meaning for the adolescent (Jessor & Jessor, 1977). The perceived environment is divided into distal factors, that are deemed to be more remote in the causal chain of predicting problem behaviour, such as social support and predominance of orientation to parents or to peers; and the proximal environment, which is seen to be most directly linked to problem behaviour, such as perceived approval-disapproval of drinking, and friends modelling drinking (Jessor, 1991).

Jessor (1991) extended problem behaviour theory to incorporate biological and genetic factors as well as the epidemiological concept of risk and protective factors. Risk factors, such as peer and parental modelling of alcohol use and deviancy, are factors that increase an adolescent's propensity to engage in problem behaviour. Protective factors, such as parental support and sanctioning against deviancy, are factors that moderate risks and mitigate problem behaviour. Jessor (1991) posits that risk and protective factors exist in each of the behaviour, personality and environmental systems described in problem behaviour theory. Therefore, effective interventions need to jointly target multiple systems (Jessor, 1991). To effectively target these multiple systems it is important to understand not only that the systems do interrelate but also how they interrelate and by what mechanisms adolescents' behaviour can be altered.

Social Cognitive Theory

Social cognitive theory is a broad-based theory, applicable to a wide variety of behaviours and outcomes, which incorporates many of the aspects outlined in the theories above, including biological, social and cognitive influences on behaviour (Bandura, 1986). Unlike many other theories, however, social cognitive theory integrates environmental, personal and behavioural factors, focusing specifically on adolescents' agentic capacity to self-direct and self-regulate their actions (Bandura, 2006). Moreover, this theory's primary focus is not only on explanations for underage drinking, but also on the mechanisms by which such behaviour is adapted and changed (Bandura, 2004).

Social cognitive theory (Bandura, 1986) emphasises a triadic reciprocity between personal, environmental and behavioural factors. *Personal factors* include judgemental standards for behaviour, self-sanctions, outcome expectations, self-efficacy, or perceived ability to perform behaviours and biological constraints; *environmental factors* refer to the broader social influences that are encountered by adolescents, including modelling of behaviour, legal and social sanctions, and social rules and standards; and *behavioural factors*

for underage drinking refer to those activity patterns linked to adolescents' alcohol use, which can include abstinence or engagement in underage drinking, risky drinking and the harmful consequences experienced as a result of one's drinking.

The relative contribution of each of the factors involved in the model of reciprocal causation are not fixed and do not exert equal strength at all times (Bandura, 1986). They can vary depending on activity and circumstance. The bidirectional relations between each of the personal, environmental, and behavioural factors mean that people are not passive products of their environment, they are active agents who select and influence their environment and have the potential to regulate their own behaviour (Bandura, 1989). Environmental factors partly exert their influence through these regulatory processes, and therefore, it is these regulatory processes which are central considerations for intervention.

Of the numerous regulatory processes proposed by Bandura (1986), the sanctions adolescents anticipate from self and others are key motivators of behaviour. According to social cognitive theory, transgressive behaviours are primarily regulated through three types of sanctions: legal sanctions, social sanctions, and evaluative self-sanctions (Bandura, 1986). For legal sanctions, adolescents may be motivated to refrain from drinking underage, particularly in public settings, for fear of getting caught and experiencing adverse legal consequences. External sanctions in adolescents' immediate social environment can also be powerful regulators of behaviour, with adolescents motivated to perform behaviour which they anticipate will result in social praise and approval and to refrain from behaviour that may result in social disapproval or censure (Bandura, 1986). However, behaviour is not solely governed by the prospect of external reward or punishment (Bandura, 1986; Reyna et al., 2013). Individuals also have the capacity to self-direct their behaviour and exercise behavioural control by the consequences they apply to themselves (Bandura, 1999). These personal self-evaluations can have complementary or opposing influences to the sanctions anticipated from others (Bussey & Bandura, 1999). According to social cognitive theory,

behaviour is, therefore, regulated by the interplay of both social and personal sanctions (Bandura, 1999). In the ensuing discussion, the focus is on social sanctions, followed by an examination of self-sanctions, and their deactivation through moral disengagement.

Social sanctions. In social cognitive theory anticipated social outcomes refer to the social sanctions adolescents anticipate for their behaviour (Bandura, 1986). This process is similar to the conceptualisation of injunctive norms in social norm theory (Perkins, 2003), and subjective norms in theory of reasoned action and theory of planned behaviour (Fishbein & Ajzen, 1975; Ajzen, 2005), which refer to perceived social acceptability for a behaviour or its normative nature. Anticipated social outcomes, however, refer more specifically to the evaluations adolescents anticipate receiving for their own behavioural performance. Additionally, social cognitive theory specifies three social modes of influence by which these social outcomes are formed.

The first mode of influence, *modelling*, refers to the values, attitudes, and patterns of thoughts and behaviour that are transmitted by adolescents' parents and peers, as well as prominent persons in educational and occupational settings, and the mass media (Bandura, 1986). By observing modelled activities adolescents extract rules and structures for behaviour that can be generalised to different settings and subsequently generated into new or unobserved forms of that behaviour. In addition to being an informational source, modelling can also alter incentive motivations to actually perform a behaviour (Bussey & Bandura, 1999). By observing the patterns of behaviour of significant persons in their lives, the costs and benefits experienced by the model for performing a behaviour, and the self-evaluations that models apply to themselves, adolescents learn social standards and outcomes for behaviour (Bussey & Bandura, 1999).

Through the second mode of influence, *enactive experience*, adolescents further develop and refine their standards and rules for action by observing the positive and negative consequences that accompany their own patterns of behaviour. These consequences are not

uniform across persons, context or forms of behaviour (Bandura, 1986). For instance, fathers have been shown to be more permissive towards underage drinking than mothers (Pettersson, Linden-Boström & Eriksson, 2009). Moreover, particularly for older adolescents, parents may accept their adolescents consuming small amounts of alcohol, but not condone them becoming drunk (Prins, Donovan & Molina, 2011). Through these diverse social outcomes, experienced from different persons, for different behaviours or in different contexts, adolescents learn social outcomes for their behaviour (Bussey & Bandura, 1999).

In addition to modelling and social evaluations of their behaviour, adolescents also learn outcomes for behaviour through *direct tuition*. Through rules, standards, and communications about alcohol, generalisations about behaviour can be learnt (Bandura, 1986). However, this mode of influence is weakened when what is taught contradicts what is modelled or what adolescents enactively experience (Bussey & Bandura, 1999).

By extracting, weighting, and synthesising the information gained from these different modes of influence adolescents develop their own anticipatory outcomes for different behaviour, different contexts, and different social figures (Bandura, 1986). Social cognitive theory posits that through the application of forethought, these foreseeable social outcomes become current motivators of behavioural performance, with individuals encouraged to engage in or abstain from particular behaviours based on the social approval or censure they anticipate (Bandura, 1986).

In the extant literature on underage drinking, there has been a predominant focus on the influence of parental and peer approval and disapproval for drinking. As highlighted in the background overview, adolescents who anticipate more approval from parents and peers for drinking alcohol have been shown to consume more alcohol underage than those who anticipate disapproval or censure (Aas & Klepp, 1992; Ford & Hill, 2012; Kristjansson et al., 2010; Mrug & McCay, 2013; Smith & Rosenthal, 1995).

Self-sanctions. As stated earlier, in addition to the social sanctions anticipated from

others, individuals also self-direct and self-regulate their own behaviour. According to social cognitive theory, similar to the development of anticipatory social outcomes for behaviour, based on modelling, enactive experience, and direct tuition, individuals also develop personal standards for behaviour. Once developed, these standards then serve as another guide and regulator of behaviour. It is through the application of foreseeable self-sanctions that individuals regulate their actions, they are motivated to perform behaviour that will result in self-praise and satisfaction and to avoid behaviour which violates personal standards as it may result in self-censure (Bandura et al., 1996).

As stated in the background overview of underage drinking, intolerant attitudes towards deviant behaviour, guilt or remorse for delinquent behaviour or underage drinking, judgements that underage drinking and substance use are wrong, and personal endorsement of underage drinking laws, have all been associated with lower adolescent engagement in underage drinking and rule violating behaviour (Abide et al., 2001; Amonini & Donovan, 2006; Barnes et al., 1999; Barnes et al., 2005; Brook et al., 1985; Cohn et al., 2010; Durkin et al., 2009; Kuther & Higgins-D'Alessandro, 2000; Nucci et al., 1991; Quiles, Kinnunen, & Bybee, 2002; Reyna et al., 2013).

Not all adolescents who hold intolerant attitudes towards deviances, who believe underage drinking is wrong, or that they should adhere to underage drinking laws, abstain from drinking alcohol or minimise their drinking and the alcohol-related harm they experience when they do drink (Abide et al., 2001; Reyna et al., 2013). According to social cognitive theory, this is because holding negative judgements about underage drinking does not automatically result in conduct in accord with those standards (Bandura et al., 1996; Caprara et al., 2014). Selective activation or disengagement of self-sanctions enables a person to engage in different types of conduct while still holding the same personal standard (Bandura, 2002). It is particularly through the process of moral disengagement that negative self-sanctions can be deactivated from personal standards, enabling individuals to perform

transgressive behaviour free of self-censure (Bandura et al., 1996).

Moral disengagement. There are eight mechanisms by which personal self-sanctions are disengaged, operating on four separate loci: behaviour, agency, outcome, and victim (Bussey & Quinn, 2014). On the behaviour locus, transgressive behaviour is cognitively reconstrued through the mechanisms of moral justification, euphemistic labelling, and advantageous comparison. *Moral justification* refers to transgressive behaviour being made acceptable by giving it a moral or social end (Bandura, 1986). Justifications with a valued personal end have also been incorporated in this concept, such as “protecting one’s own interests” (Caprara, Fida, Vecchione, Tramontano, & Barbaranelli, 2009, p. 506) or for illicit steroid use “overcoming one’s limits” (Lucidi et al., 2008, p. 452). Similarly, adolescents may justify underage drinking by emphasising valued outcomes including increasing confidence or dealing with problems (Muller & Kuntsche, 2011; Patrick, Schulenberg, O’Malley, Johnston & Bachman, 2011). *Euphemistic labelling* refers to changing the language of transgressive conduct to sanitise it and make it more respectable (Bandura, 2002; Bandura, 1986). Slapping or shoving someone has been relabelled as “just a way of joking” (p.374) (Bandura et al., 1996). Similarly, adolescents may distance themselves from the negative consequences of alcohol if they see it as “just a way to have fun”. *Advantageous comparison* is where reprehensible actions become righteous by comparing them to acts that are more grievous (Bandura, 2002). For example, adolescents may minimise the harmful effects of alcohol by comparing it to the damaging effects of illicit drugs.

On the agency locus, personal agency for transgressive behaviour is minimised through displacement and diffusion of responsibility (Bussey & Quinn, 2014). *Displacement of responsibility* is where individual responsibility for behaviour is removed and self-condemnation avoided by placing the responsibility for that behaviour on an authority figure (Bandura, 2002). In school bullying, students excuse their lack of intervention because they see it as adults’ responsibility to stop the bullying (Hymel, Rocke-Henderson, & Bonanno,

2005). Similarly, adolescents may displace responsibility for their drinking to the adults who supply the alcohol or allow them to drink. *Diffusion of responsibility* refers to the minimisation of self-censure when a transgressive behaviour is performed as part of a group, “when everyone is responsible no one really feels responsible” (Bandura 2002, p 17). Acting within a group increases anonymity and reduces self-consciousness, thereby allowing an individual to engage in behaviours they would not normally perform alone (Hymel, Schonert-Reichl, Bonanno, Vaillancourt, & Henderson, 2010). Peer drinking has consistently been found to positively relate to adolescent alcohol consumption (Belendiuk, Molina, & Donovan, 2010; Dal Cin et al., 2009; Segrist, Corcoran, Jordon-Fleming, & Rose, 2007) and adolescents are most likely to drink at parties with at least three or four other friends (Anderson & Brown, 2011).

On the outcome loci, individuals can disengage from their behaviour by altering the perceived consequence of the behaviour (Bandura, 2002). As long as adolescents can disbelieve, disregard, distort or *minimise the detrimental outcomes* of their conduct, there is little reason for them to experience self-censure (Bandura, et al., 1996). In aggression studies, individuals who harm others are more likely to remember the potential benefits of their behaviour than the harmful effects (Brock & Buss, 1962; 1964). Similarly, expectancy studies show that adolescents may be aware of the negative outcomes of alcohol consumption, but it is the perceived positive benefits which relate more strongly to their drinking (Stein et al., 2006; Sutherland & Sheperd, 2002; Willner, 2001). Finally, for the victim locus, *attributing blame* to a victim or *dehumanising* a victim enables disengagement of self-sanctions because it is easier to transgress against someone who is seen as different or less human than oneself, and as deserving of the transgression (Bandura, et al., 1996). The victim locus has been shown to be less relevant for transgressive behaviours which do not have a clearly identified victim. For instance, in research investigating illicit steroid use in sport, dehumanisation and attributing blame to victims are rarely advocated (Ludici et al., 2008). Consequently, the

victim locus has limited applicability to research focusing on adolescents' justifications and excuses for drinking underage. It is more relevant to the secondary consequences of alcohol consumption which may lead to aggressive behaviour against targeted victims.

Moral disengagement has been applied to a wide variety of transgressive behaviour and rule-violating conduct including aggression, bullying, delinquency (Bandura et al., 1996; Caprara et al., 2014; Gini, Pozzoli, Hymel, 2014), antisocial sporting behaviour (Boardley & Kavussanu, 2009; Stanger, Kavussanu, Ring, 2013), steroid use in sport (Lucidi, et al., 2008), violation of civic responsibilities (Caprara et al., 2009), unethical decision making (Detert, Trevino, & Sweitzer, 2008), and illicit substance use (Kiriakidis, 2008; Passini, 2012). Recently, the concept of moral disengagement has also been applied to underage drinking (Newton et al., 2014; Newton et al., 2012). As stated in the background overview of underage drinking, the more adolescents justified and excused transgressive behaviour, the more likely they were to drink underage, engage in risky drinking, and engage in rule violating behaviour (Bandura et al., 1996; Bandura et al., 2001; Hyde et al., 2010; Kiriakidis, 2008; Newton et al., 2014; Newton et al., 2012; Pelton et al., 2004).

Present Research

As stated above, social cognitive theory posits that behaviour is regulated by an interplay between personal self-regulatory processes, such as moral disengagement, and social influences, such as anticipatory social outcomes (Bandura, 1986). However, limited research has concurrently examined the independent contribution of moral disengagement and anticipated social outcomes on adolescents' alcohol use and experience of alcohol-related harm. To address this issue, the current research consisted of three studies, the first focusing on moral disengagement, the second on anticipated social outcomes, and the third on the independent, across-time contribution of moral disengagement and anticipated social outcomes on adolescents' underage drinking and experience of alcohol-related harm.

Assessments of moral disengagement are usually contextualised to the transgressive

behaviour under investigation. Moral disengagement scales that have been contextualised to transgressive behaviours, such as school bullying, antisocial sporting behaviours and violations of civic responsibilities, have been found to more strongly relate to these behaviours than broad-based measures of moral disengagement covering a range of transgressive behaviours (Boardley & Kavussanu, 2007; Caprara et al., 2009; Gini et al., 2014). Therefore, it would be expected that a moral disengagement scale contextualised to underage drinking would also more strongly relate to adolescents' alcohol use than a broad-based moral disengagement scale. Consequently, a central aim of the first paper, presented in Chapter 2, was to develop a moral disengagement scale specific to underage drinking, the Underage Drinking Disengagement Scale. The second aim of this first paper, was to then examine underage drinking disengagement in the context of Bandura's (1986) theory of self-regulation, assessing the relationship between personal standards, self-sanctions, underage drinking disengagement and adolescents' engagement in underage drinking and experience of alcohol-related harm.

The second paper, presented in Chapter 3, assessed the social outcomes adolescents anticipate for drinking alcohol and being drunk. As stated earlier, adolescents develop different anticipatory social outcomes for different behaviours and for different social figures (Bandura, 1986). Although the social approval and censure adolescents anticipate from parents and peers have been separately examined (Aas & Klepp, 1992; Kristjansson et al., 2010), there has been limited examination of different social outcomes anticipated from mothers compared to fathers. Fathers have been shown to consume more alcohol (Pettersson et al., 2009; Van der Vorst, Engels, Meeus & Dekovic, 2006), and to hold more permissive attitudes towards underage drinking (Brody, Ge, Katz, & Arias, 2000; Pettersson et al., 2009) than mothers. Moreover, the limited examination of paternal and maternal influences on underage drinking demonstrates that mothers and fathers do not have a uniform influence on their children's alcohol consumption. Fathers' alcohol use more strongly relates to

adolescents' underage drinking and experience of alcohol-related harm than does mothers' alcohol use (Chassin, Curran, Hussong, & Colder, 1996; Mares, Van der Vorst, Engels, & Lichtwarck-Aschoff, 2011; Van der Vorst, Vermulst, Meeus, Dekovic, & Engels, 2009; Zhang, Welte, & Wieczorek, 1999). Conversely, communication from mothers and maternal disapproval of underage drinking has been shown to more strongly relate to adolescents' alcohol use than communication or disapproval of fathers (Andrews, Hops, Ary, Tildesley, & Harris, 1993; Bogenschneider, Wu, Raffaelli, & Tsay, 1998; Mares et al., 2011). Consequently, adolescents may anticipate different levels of approval or disapproval from their mothers compared to their fathers for their alcohol use. To gain a comprehensive understanding of the social sanctions adolescents anticipate for their alcohol use, and how these anticipatory social outcomes relate to adolescents' underage drinking, it is therefore necessary to consider the social outcomes adolescents anticipate separately from mothers, fathers, and peers.

Moreover, it is important to consider the different social outcomes adolescents' anticipate for different alcohol-related behaviours. There has been a predominant focus on the approval or disapproval adolescents anticipate for drinking alcohol (Ford & Hill, 2012; Mrug & McCay, 2013; Yu, 1998). A portion of adolescents, however, consume alcohol with the expressed intent of becoming intoxicated (White & Bariola, 2012) and it is intoxicated drinking which is commonly associated with problematic alcohol use and experience of alcohol-related harm (Ministerial Counsel on Drug Strategy, 2006). Yet for adolescents, there is limited research specifically focusing on the social outcomes adolescents anticipate for being drunk and how these influence their alcohol consumption or experience of alcohol-related harm. Therefore, the second paper, presented in Chapter 3, had a primary aim of examining the social outcomes adolescents anticipate from their mothers, fathers, and peers for drinking alcohol and being drunk and how they relate to both engagement in underage drinking and experience of alcohol-related harm. To achieve this aim, two anticipated social

outcomes scales were developed. The first scale assessed the social outcomes adolescents anticipate from their mothers, fathers, and peers for drinking alcohol, and the second scale assessed the social outcomes adolescents anticipate from their mothers, fathers, and peers for being drunk.

As stated earlier, limited research has concurrently examined the independent contribution of moral disengagement and anticipated social outcomes on adolescents' alcohol use and experience of alcohol-related harm using longitudinal data. Consequently, the third paper, presented in Chapter 4, examined the concurrent relationship between underage drinking disengagement and anticipated social outcomes from mothers, fathers, and peers for being drunk, on underage drinkers' use of alcohol and experience of alcohol-related harm across three time points during mid-adolescence.

In Chapter 5, an overview of the findings and their implications, as well as the strengths and limitations of the present research are discussed. This final chapter also examines areas for future research.

Chapter 2

The Role of Moral Disengagement in Underage Drinking and Alcohol-related Harm

Abstract

Objectives: The current study had two aims. First, to develop a moral disengagement scale contextualised to underage drinking. Second, to investigate Bandura's (1986) self-regulatory model within the context of underage drinking.

Method: Two different samples of students participated in the study. The first sample included 619 (362 females) adolescents (age range: 13-17 years) and the second sample 636 (386 females) adolescents (age range: 14-17 years). Students in the first sample completed the Underage Drinking Disengagement Scale (UDDS). Students in the second sample completed this scale as well as measures of general moral disengagement, alcohol-related harm, underage drinking, personal standards, and anticipatory guilt.

Results: For the UDDS, exploratory and confirmatory factor analyses verified a single factor structure. The UDDS was more strongly associated with underage drinking and experience of alcohol-related harm than a general measure of moral disengagement. A moderated mediation analysis revealed that adolescents who negatively evaluated underage drinking reported more anticipatory guilt, and more anticipatory guilt was associated with less engagement in underage drinking and less experience of alcohol-related harm. This relationship was weaker at high compared to low levels of underage drinking disengagement.

Conclusions/Importance: Understanding how adolescents self-regulate their drinking, and ways that such self-regulation may be deactivated or disengaged, may help identify those adolescents at increased risk of drinking underage and of experiencing alcohol-related harm.²

² Manuscript submitted for publication. In subsequent chapters this study is referred to as "Quinn, C., & Bussey, K. (2014). *The Role of Moral Disengagement in Underage Drinking and Alcohol-related Harm*. Manuscript submitted for publication.

The Role of Moral Disengagement in Underage Drinking and Alcohol-related Harm

Adolescence is a time of expanding roles and responsibilities for young people (Masten, Faden, Zucker, & Spear, 2008). Most adolescents navigate this period successfully, exercising control over their behaviour in line with internalised social standards (Bandura, 2006). However, a significant number of adolescents engage in socially transgressive behaviours such as delinquent acts, illicit substance use, and underage drinking (Eaton et al., 2011; McAtamney & Morgan, 2009). The prevalence of underage drinking and the severity of its negative outcomes make it a particularly problematic behaviour. Alcohol-related harms experienced by underage drinkers include physical illness, memory loss, physical altercations, and long-term alcohol dependence (Englund, Egeland, Oliva, & Collins, 2008; White & Bariola, 2012). Extensive research has examined factors associated with adolescent alcohol use and alcohol-related harms, including genetic vulnerability, personality traits, and social factors (Gentle-Genitty, 2010; McAdams, Rowe, Rijdsdijk, Maughan, & Eley, 2012; Morgado & Vale-Dias, 2013). Moral processes, such as moral disengagement, have also been advanced to explain why adolescents may drink underage despite legal restrictions and possible harmful consequences of alcohol use (Amonini & Donovan, 2006; Newton, Barrett, Swaffield, & Teesson, 2014). Moral disengagement is the social cognitive process whereby individuals justify or excuse transgressive behaviour without being constrained by self-sanctions (Bandura, 2002).

The degree to which adolescents justify or excuse delinquent behaviour has been associated with their propensity to drink underage and to drink in a risky manner (Newton, Havard, & Teesson, 2012; Newton et al., 2014). However, moral disengagement is a context specific process, whereby individuals justify specific transgressive behaviours (Bandura, 1986). Indeed, moral disengagement scales contextualised to transgressive behaviours, such as school bullying, antisocial sporting behaviours, and violations of civic responsibilities, are more strongly related to such behaviours than a broad-based moral disengagement scale

covering a range of transgressive behaviours (Boardley & Kavussanu, 2007; Caprara, Fida, Vecchione, Tramontano, & Barbaranelli, 2009; Gini et al., 2014). To more appropriately assess moral disengagement for underage drinking it is therefore important to utilise a moral disengagement scale contextualised to underage drinking. Consequently, the first aim of the current study was to devise such a scale, the Underage Drinking Disengagement Scale (UDDS).

Moral disengagement scales have been developed based on Bandura's (1986, 2002) eight moral disengagement mechanisms. Six of these moral disengagement mechanisms were contextualised to underage drinking and subsequently included in the UDDS. These mechanisms included: giving underage drinking a social or moral purpose (*moral justification*), renaming or relabelling underage drinking (*euphemistic labelling*), comparing underage drinking to something more grievous (*advantageous comparison*), placing responsibility for underage drinking on an authority figure (*displacement of responsibility*), spreading responsibility among a group (*diffusion of responsibility*) and, disregarding, distorting, or minimising the consequences of underage drinking (*minimising the consequences*). The final two disengagement mechanisms, which focus on victims (i.e., blaming the victim for the transgression, or stripping the victim of their human qualities) did not form part of the UDDS. This is because the UDDS focuses on adolescents' justifications for underage drinking, not on their justifications for the secondary consequences of alcohol consumption, such as aggressive behaviour against targeted victims.

For the UDDS to have utility in interventions targeting underage drinking and alcohol-related harm, it is important to establish that underage drinking disengagement operates in the same way as proposed by Bandura (1986) in his social cognitive theory model of self-regulation. Bandura's model of self-regulation posits that personal standards of right and wrong are adopted, through a process of socialisation, and act as a guide for behaviour. Once developed, behaviour is then monitored and self-regulated in accord with these personal

standards (Bandura, 1986). Anticipation of negative self-evaluative reactions, such as anticipatory guilt, deters engagement in transgressive behaviour, keeping behaviour in line with personal standards (Bandura, Barbaranelli, Caprara, & Pastorelli, 1996). However, self-evaluative influences do not operate as fixed regulators of behaviour (Bandura, 2002). They can be deactivated by invoking moral disengagement strategies (Bandura, 1986). While this self-regulatory model has been examined in other domains, it has not been examined for underage drinking. Therefore, the second aim of the current study was to examine Bandura's self-regulatory model in the context of adolescents' engagement in underage drinking and experience of alcohol-related harm. This was achieved in two steps using a moderated mediation model (see Figure 1).

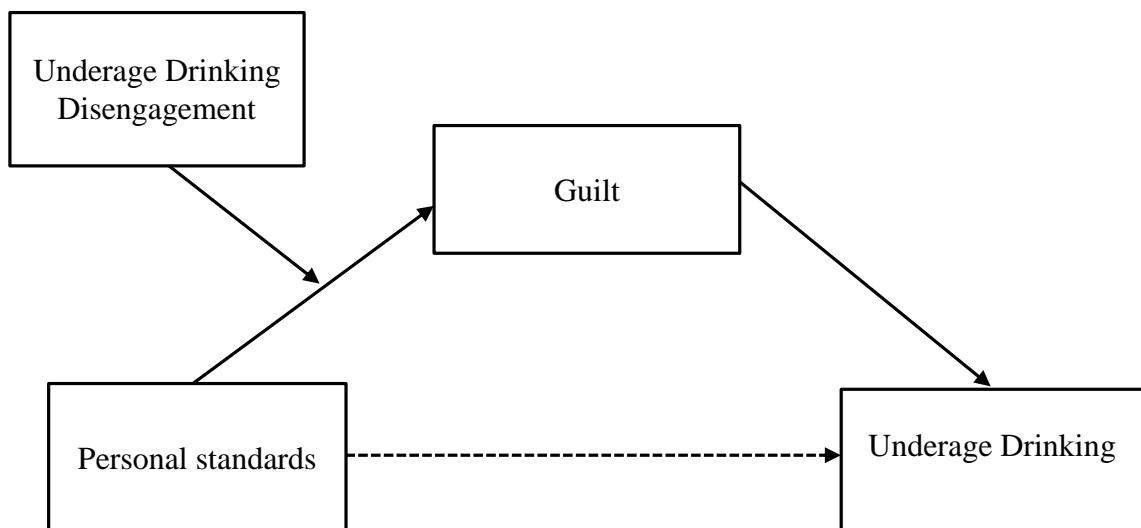


Figure 1. The conceptual moderated mediation model of personal standards to guilt to underage drinking as moderated by UDDS.

The first step involved an examination of the relationship between personal standards, anticipatory guilt and both engagement in underage drinking and drinkers' experience of alcohol-related harm. Adolescents who hold a personal standard that alcohol and substance use is wrong, or who believe they have a personal responsibility to adhere to underage

drinking laws, have been found to use less alcohol and to experience less alcohol-related harm (Abide, Richards, & Ramsey, 2001; Amonini & Donovan, 2006; Reyna et al., 2013).

Additionally, high levels of anticipatory guilt have been associated with low alcohol consumption and alcohol abstinence (Caffray & Schneider, 2000; Dearing, Stuewig, & Tangney, 2005; Quiles, Kinnunen, & Bybee, 2002). Therefore, in line with previous research, and in accord with Bandura's (1986) model of self-regulation, it is expected that the more negatively adolescents judge underage drinking, the more guilt they would anticipate, and the less they would engage in underage drinking or experience alcohol-related harm.

The second step in examining Bandura's (1986) self-regulatory model in the context of underage drinking and drinkers' experience of alcohol-related harm, involved an investigation of whether the above relationship varies as a function of underage drinking disengagement. Not all adolescents who believe underage drinking is wrong, or that they should adhere to underage drinking laws, have been found to abstain from drinking alcohol or to minimise the alcohol-related harm they experience if they do drink (Abide et al., 2001; Reyna et al., 2013). According to Bandura's self-regulatory model, this is because holding personal standards does not automatically result in moral conduct (Bandura et al., 1996). These standards can be deactivated through moral disengagement (Bandura, 2002). Indeed, it has been found that moral disengagement is associated with lower anticipatory guilt and higher engagement in transgressive behaviour (Bandura et al., 1996; Stanger, Kavussanu, Boardley, & Ring, 2013). In line with this research and Bandura's self-regulatory model, it is expected that the relationship between personal standards and anticipatory guilt would vary as a function of underage drinking disengagement. In particular, it is anticipated that the greater the propensity to invoke disengagement strategies the weaker the relationship between personal standards and anticipatory guilt.

In summary, the first aim of the current study was to develop the UDDS. Similar to other moral disengagement scales, although disengagement mechanisms will be individually

assessed, they are expected to be highly interrelated and form part of a single underlying construct (Bandura et al., 1996; Caprara et al., 2009; Paciello, Fida, Tramontano, Lupinetti, & Caprara, 2008). It was further expected that the UDDS would be strongly associated with a general moral disengagement scale. However, given the use of items specific to underage drinking, it was expected that the UDDS would relate to both engagement in underage drinking and drinkers' experience of alcohol-related harm over and above the relationship obtained with a general moral disengagement scale.

The second aim of this study was to examine Bandura's (1986) self-regulatory model within the domain of underage drinking using a moderated mediation model. It was hypothesised that negative judgement about underage drinking would be associated with high anticipatory guilt, which would relate to low engagement in underage drinking and low experience of alcohol-related harm. It was further anticipated that this relationship would be weakest at high levels of underage drinking disengagement, such that individuals who disengaged would be less likely to anticipate guilt and more likely to engage in underage drinking and to experience alcohol-related harm.

The present study focused on 13 to 17 year old adolescents, since many adolescents consume their first full drink alcohol from early to mid-adolescence (Australian Institute of Health and Welfare [AIHW], 2011) and underage drinking has been shown to sharply increase from approximately 15 years of age (Gutman, Eccles, Peck, & Malanchuk, 2011). Consistent with Bandura's (1986) self-regulatory model, the relationship between personal standards, anticipatory guilt, disengagement and underage drinking is expected to be consistent across gender and grade. However, gender and grade will be controlled in all analyses as previous research has found mean grade and gender differences for these variables (Barchia & Bussey, 2011; Young, Sweeting, & West, 2007).

Method

Participants

Two different samples of students participated in the study. The first included 619 (362 females) predominantly White Australian (80%) adolescents in grades 9 ($n = 309$, $M_{\text{age}} = 14.33$, age range: 13-16 years) and 11 ($n = 310$, $M_{\text{age}} = 16.21$, age range: 15-17 years) from four non-government secondary schools. The second sample included 636 (386 females) predominantly White Australian (88%) students in grades 9 ($n = 405$, $M_{\text{age}} = 14.66$ years, age range: 14-16 years) and 11 ($n = 231$, $M_{\text{age}} = 16.53$, age range: 16-17 years) from four non-government secondary schools. Informed written consent was gained from participants and passive consent was obtained from their parents. The participation rate was above 90% for both samples.

Measures

Students in the first sample completed the Underage Drinking Disengagement Scale (UDDS). Students in the second sample completed this scale as well as measures of general moral disengagement, lifetime drinking, alcohol-related harm, personal standards and anticipatory guilt.

Underage drinking disengagement. The UDDS was adapted from Bandura et al.'s (1996) moral disengagement scale and Lucidi et al. (2008) steroid disengagement scale. Items were also created based on pilot interviews conducted with 10 high school students. Students were asked to spontaneously list common excuses for underage drinking. A total of 34 items were created, which covered the six mechanisms of disengagement used in this study. The 34 items were rated by 18 experts (i.e., alcohol or moral disengagement researchers and high school teachers) on a 5-point scale from 1 = *very poor* to 5 = *very good* to determine the applicability of each item to a teenage population and to the disengagement mechanism being measured. Items with an average of lower than a score of 4 (good) were removed. Items were then inspected to ensure they did not cross-over mechanisms. A total of 18-items (3-items per

mechanism) were included for analysis in the final scale (see Table 1). Students rated each item on a 5-point scale (1 = *strongly disagree* to 5 = *strongly agree*). Higher UDDS scores indicated greater disengagement to underage drinking.

General moral disengagement. Paciello et al.'s (2008) 32 item adolescent Moral Disengagement Scale was used in this study. Students were asked to rate, on a 5-point scale (1 = *strongly disagree* to 5 = *strongly agree*) how much they agreed with the items measuring different moral disengagement mechanisms. Minor modifications were made, subsequent to pilot testing, to increase the cultural sensitivity and comprehensibility of the questions within the present sample. Items included: "it's alright to lie to keep your friends out of trouble" and "teasing someone does not really hurt him/her". The scale had good internal reliability, $\alpha = .93$.

Lifetime drinking. To assess engagement in underage drinking, students were asked, "have you ever tried alcohol?". A 3-point response item was used (0 = *No*; 1 = *yes, a sip or a taste*; 2 = *Yes, I've had at least a full standard drink of alcohol*). A full standard drink (10g of alcohol) was visually depicted. This scale was taken from the SHAHRP 'Patterns of Alcohol Use' measure (McBride, Farrington, Meuleners, & Midford, 2006; Newton, Vogel, Teesson, & Andrews, 2009).

Alcohol-related harm. Experience of alcohol-related harm was measured using the Alcohol-related Harm index from the CLIMATE Schools survey (Newton et al., 2009). Only 10 of the 12 items from the CLIMATE Survey were used in this study. Two items related to sexual activity after consuming alcohol and were not approved by the ethics committee and therefore were not included. Respondents indicated on a 6-point scale (1 = *never* to 6 = *12 or more times*) how often in the past three months they experienced harm as a consequence of their own drinking. Items included: "how many times did you have a hangover after drinking?" and "on how many occasions did you damage something because you were affected by alcohol?". This index had good internal consistency ($\alpha = .89$).

Alcohol personal standards. The Alcohol Personal Standards Scale was based on Bussey's (1999) personal standards measure. Students answered six items relating to different quantities of alcohol consumption, ranging from "one full standard drink" to "more than six standard drinks". Students rated "how good or bad is it for someone your age" to consume each quantity of alcohol. Students responded on a 6-point scale (1 = *very good* to 6 = *very bad*). Higher personal standards scores indicated greater negative judgement of underage drinking. The scale had good internal reliability, $\alpha = .94$.

Alcohol guilt. The Alcohol Guilt Scale was based on Bussey's (1999) internal evaluative reactions measure. Students answered six items relating to different quantities of alcohol consumption, ranging from "one full standard drink" to "six or more standard drinks". Students were asked "how would you feel about yourself" for having consumed each quantity of alcohol, responding on a 4-point scale (1 = *not at all* to 4 = *very guilt*). The scale had good internal reliability, $\alpha = .95$.

Missing Data

Missing data at the item level were between 0 and 1.7%. All missing data were imputed using the expectation-maximisation (EM) algorithm in SPSS. This procedure has been shown to be superior to means substitution, pair-wise deletion, or list-wise deletion (Enders, 2001; Schafer & Graham, 2002).

Procedure

Testing occurred in groups of approximately 20 students in classrooms or in groups of approximately 100 students in halls. Testing was conducted under the supervision of research assistants and school teachers. Students were informed both verbally and in writing that their answers were anonymous and that their parents and teachers would not see their individual answers. To ensure confidentiality, participants were asked not to discuss their responses with their peers. Students were informed that if they wished to discuss their responses they could speak to the research team or school counsellor. Participants took 45 to 50 minutes to

complete the questionnaire.

Results

Statistical Analysis

First, the results of the exploratory (conducted on Sample 1) and confirmatory factor analyses (conducted on Sample 2) for the UDDS are presented. Next, the UDDS is compared to a general moral disengagement scale, first through correlational analysis, then through two hierarchical regressions. In the hierarchical regressions, underage drinking and alcohol-related harm are regressed on the UDDS, whilst controlling for a general moral disengagement scale. These and subsequent analyses were conducted on Sample 2. Finally, consistent with previous research (Berndt et al., 2012), the proposed moderated mediation was examined in three steps. First, two mediational analyses are presented examining the indirect effect of personal standards on underage drinking and alcohol-related harm, through anticipatory guilt, using a combination of Baron and Kenny's (1986) mediational framework and Preacher and Hayes (2008) INDIRECT procedure. Second, hierarchical linear regressions are presented examining the moderating effect of underage drinking disengagement on the relationship between personal standards and anticipatory guilt. Third, moderated mediation is examined in accord with Edwards and Lambert's (2007) first stage moderation model using Preacher, Rucker, and Hayes' (2007) approach (see Figure 1).

Underage Drinking

Consistent with population based Australian surveys (AIHW, 2011), 89% of students in Sample 2 had tried alcohol. However, only 60% of students had consumed at least a full standard drink of alcohol. Similar to previous studies (Agostinelli & Grube, 2005; Kelly et al., 2011), the present study distinguished between those students who had never consumed or only tasted alcohol, from those who had consumed at least a full drink of alcohol. To achieve this, the lifetime drinking item score was dichotomised (0 = *have not consumed a full standard drink in their lifetime*; 1 = *have consumed a full standard drink in their lifetime*).

Table 1

Factor loadings for the UDDS.

Item	EFA	CFA
1. It's okay for teenagers to use alcohol if it helps them to become more confident at parties	.78	.79
2. Drinking alcohol is just a way to have fun	.78	.78
3. Getting drunk is okay because it is not as bad stealing or hurting other people	.78	.81
4. If adults leave alcohol lying around it is their fault if teenagers drink	.55	.59
5. Teenagers can't be blamed for drinking if their family members are drinking	.65	.54
6. A couple of drinks never hurt anybody	.71	.73
7. It's okay for teenagers to use alcohol if it helps them to relax	.80	.77
8. Drinking is cool	.71	.76
9. Drinking alcohol is okay because it's not as bad as using illegal drugs	.78	.77
10. If parents don't stop drinking at a party, teenagers can't be blamed for drinking	.70	.62
11. Teenagers can't be blamed for drinking if their friends are drinking	.75	.71
12. There is no reason to punish teenagers for drinking, after all it doesn't hurt anyone	.74	.75
13. It's okay for teenagers to drink alcohol if it helps them to deal with their problems	.77	.73
14. Drinking alcohol is a "confidence boost"	.67	.70
15. Only drinking on weekends is okay because it's not as bad as drinking every day	.73	.75
16. Teenagers can't be blamed for drinking if their family members encourage them to do it	.50	.43
17. If everyone at a party is drinking it is unfair to blame one kid for drinking	.50	.45
18. Getting drunk doesn't really have any negative long term effects	.61	.64

Note. EFA = factor loadings for exploratory factor analysis; CFA = factor loadings for confirmatory factor analysis.

The following items correspond to the various mechanisms of moral disengagement, *Justification*: 1, 7, 13. *Euphemistic language*: 2, 8, 14. *Advantageous comparison*: 3, 9, 15. *Displacement of responsibility*: 4, 10, 16. *Diffusion of responsibility*: 5, 11, 17. *Distorting consequences*: 6, 12, 18.

Structure of the UDDS

Exploratory Factor Analysis (Sample 1). A factor analysis using principal axis extraction was performed on the UDDS. Consistent with previous moral disengagement research (Bandura et al., 1996; Paciello et al., 2008), a dominant factor was revealed, with an eigenvalue of 9.19, explaining 51.07% of the variance in the UDDS. Factor loadings for the scale are presented in Table 1. The UDDS had an alpha reliability of .94.

Confirmatory factor analysis (Sample 2). To confirm the single-factor structure of the UDDS, and its measurement and structural invariance across grade and gender, a confirmatory factor analysis was conducted on Sample 2³. The model obtained satisfactory fit, $\chi^2(127, N = 636) = 600.87, p < .001, CFI = .93, TLI = .92, RMSEA = .077$. Measurement and structural invariance across grade and gender were separately examined. A $\Delta CFI < .01$ was used as an indicator of measurement and structural invariance (Cheung & Rensvold, 2002). The fit indices of the unconstrained models demonstrated configural invariance across gender and grade, $\chi^2(254, N = 636) = 749.35, p < .001, CFI = .93, TLI = .91, RMSEA = .055$; $\chi^2(254, N = 636) = 731.41, p < .001, CFI = .93, TLI = .92, RMSEA = .054$. When factor loadings, $\Delta\chi^2(17) = 24.22, p = .113, \Delta CFI = .002$; $\Delta\chi^2(17) = 19.67, p = .292, \Delta CFI = .003$, and structural components of the models, $\Delta\chi^2(18) = 25.64, p = .108, \Delta CFI = .002$; $\Delta\chi^2(18) = 22.19, p = .224, \Delta CFI = .000$, were constrained there was no significant difference in model fit, indicating measurement and structural invariance of the model across grade and gender.

UDDS

The bivariate correlation between the UDDS and the general moral disengagement scale revealed a strong positive relationship, $r = .70$. To test whether the UDDS was associated with underage drinking and alcohol-related harm, over and above the general moral

³ Browne and Cudeck's (1993) and Vandenberg and Lance's (2000) criterion was used to determine model fit (i.e., Comparative Fit Index (CFI) and Tucker Lewis Index (TLI) values of .90 or greater, and a Root Mean Square Error of Approximation (RMSEA) value of .08 or less). Due to similarity in wording, the errors of items with similar wording were allowed to correlate (e.g., three item stems began with the same wording: "*teenagers can't be blamed for drinking if ...*"). Failure to allow the correlation of anticipated residuals can result in a misleading interpretation of the model (Cole, Ciesla, & Steiger, 2007).

disengagement scale, two hierarchical regression analyses were conducted (see Table 2). In each regression, gender, grade, and school were entered first as control variables, the general moral disengagement scale was entered second, and the UDDS was entered last.

Table 2

Hierarchical regressions of the UDDS on underage drinking and alcohol-related harm, controlling for general moral disengagement.

	Underage drinking ^a (N = 636)			Alcohol-related harm ^b (n = 384)	
	ΔR^2	OR	95%CI	ΔR^2	β
Step 1	.22***			.01	
Grade		4.84***	3.17-7.37		-.00
Gender		0.48***	0.33-0.71		-.01
Step 2	.14***			.14***	
Grade		8.97***	5.51-14.62		.15**
Gender		0.77	0.50-1.18		.12*
MD		1.06***	1.04-1.07		.42***
Step 3	.14***			.09***	
Grade		8.88***	5.20-15.16		.15**
Gender		0.69	0.42-1.10		.11*
MD		1.00	0.98-1.02		.17**
UDDS		1.12***	1.09-1.15		.39***

Note. The underage drinking regression is logistic regression odds ratio with Nagelkerke R^2 ; alcohol-related harm regressions are standardised OLS regression coefficients with OLS R^2 . Three dummy variables coding school were entered in the Step 1 of all models but their coefficients are not reported here. a = (0 = *never consumed full standard drinking*, 1 = *have consumed full standard drink*). b = log10 transformed; results for drinkers only.

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

As seen in Table 2, the UDDS was more strongly associated than the general moral disengagement scale with adolescents' engagement in underage drinking and underage drinkers' experience of alcohol-related harm. Therefore, the UDDS was used as the measure of disengagement in all further analyses.

Moderated Mediation

Simple mediation. For each set of analyses Baron and Kenny's (1986) mediational process was followed. First underage drinking and alcohol-related harm (i.e., the outcome variable) were regressed on personal standards (i.e., the independent variable). Next anticipatory guilt (i.e., the mediator) was regressed on personal standards. Finally, underage drinking and alcohol-related harm were regressed on personal standards while controlling for anticipatory guilt. The first set of mediational analyses were conducted on the total sample ($N = 636$) with underage drinking as the outcome variable. The second set of analyses were conducted on the drinker sub-sample ($n = 384$) with alcohol-related harm as the outcome variable. Grade, gender, and school were included as control variables in all analyses.

As shown in Table 3 and Figure 2, personal standards were significantly associated with engagement in underage drinking (Model 5 and c in Figure 2) and drinkers' experience of alcohol-related harm (Model 7). Personal standards were also significantly associated with anticipatory guilt (Model 1, 2 and path a in Figure 2). When personal standards were regressed on underage drinking/alcohol-related harm while controlling for anticipatory guilt, anticipatory guilt and personally standards were significantly associated with engagement in underage drinking (Model 6) and drinkers' experience of alcohol-related harm (Model 8). However, the strength of the association between personal standards and underage drinking/alcohol-related harm was reduced, indicating possible partial mediation (Baron & Kenny, 1986).

To examine the existence of partial mediation, the significance of the indirect effect of personal standards on underage drinking/alcohol-related harm through anticipatory guilt was

Table 3

Ordinary Least Squares and Logistic Regression Model Coefficients for Mediation and Moderation Analyses.

	Guilt				Underage drinking ^a		Alcohol-related harm ^b	
	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6	Model 7	Model 8
Personal Standards (PS)	.53***	.44***	.46***	.38***	.73***	.80***	-.44***	-.32***
UDDS			-.25***	-.23***				
PS X UDDS			-.19***	-.22***				
Guilt						.86***		-.26***
R ²	.44***	.30***	.53***	.37***	.52***	.57***	.20***	.25***

Note. Model 1, 3, 5 & 6 were conducted on total sample ($N = 636$). Model 2, 4, 7 & 8 were conducted on drinker sub-sample ($n = 384$). Models 1-5 and 7-8 are standardised regression coefficients with OLS R^2 ; Models 5-6 are logistic regression ORs with Nagelkerke R^2 . Grade, gender and three dummy coded school variables were entered in all models but their coefficients are not reported here. a = underage drinking (0 = *never consumed full standard drinking*, 1 = *have consumed full standard drink*). b = log10 transformed.

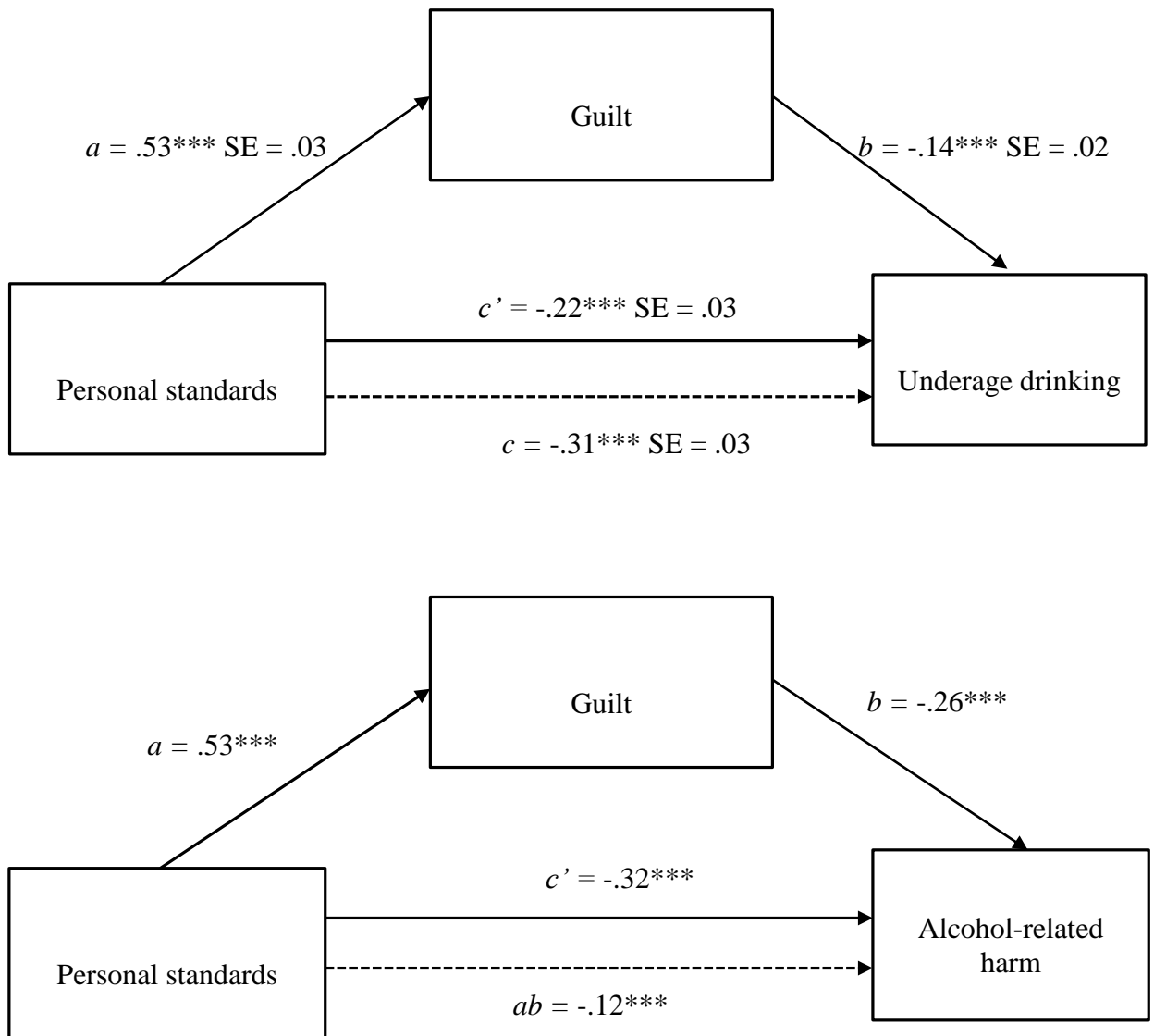


Figure 2. Path coefficients of simple mediational analysis on underage drinking (top: $N = 636$) and alcohol-related harm (bottom: $n = 384$).

Note. Grade, gender and the three dummy coded school variables were included as control variables and are not depicted here. For both mediation diagrams a is an unstandardised OLS regression coefficient. For underage drinking b , c and c' represent unstandardised logistic regression coefficients. The dotted line represents path c (i.e., effect of personal standards on underage drinking when guilt is not included in the model (the indirect effect could not be calculated due to difference in scaling of the indirect and total effects (MacKinnon, Lockwood, Brown, Wang, & Hoffman, 2007)). For alcohol-related harm a , b and c' represent OLS regression standardised β coefficients. The dotted line represents path ab (i.e., the indirect effect of personal standards on alcohol harm through guilt).

tested using Preacher and Hayes' (2004, 2008) nonparametric bootstrapping method⁴. Bootstrapping was used with 5000 resamples and 95% bias corrected confidence interval (CI). The indirect effect was deemed significant when the bootstrapping CI does not contain zero (Hayes, 2009). For underage drinking, results yielded a point estimate of -.075 and a 95% CI between -.099 and -.049, indicating a significant indirect effect of personal standards on engagement in underage drinking, through anticipatory guilt. For alcohol-related harm, results yielded a point estimate of -.003 and a 95% CI between -.005 and -.002, indicating a significant indirect effect of personal standards on drinkers' experience of alcohol-related harm, through anticipatory guilt.

Moderation. To test whether the UDSS moderated the effect of personal standards on anticipatory guilt, two hierarchical regressions were conducted with anticipatory guilt as the dependent variable (see Table 3). The first regression was conducted on the total sample (Model 3) and the second regression was conducted on the drinker sub-sample (Model 4). For both regressions gender, grade, and school were entered first as control variables, then the main effects of personal standards and UDSS were entered, and the product of personal standards and UDSS was entered last. All variables were mean centred prior to entry into the regression (Cohen, Cohen, West, & Aiken, 2003).

In the final model, personal standards were significantly positively related to anticipatory guilt, $t(636) = 10.00, p < .001$ (sub-sample: $t(384) = 6.51, p < .001$), UDSS was significantly negatively related to anticipatory guilt, $t(636) = 6.72, p < .001$ (sub-sample: $t(384) = 4.78, p < .001$), and there was a significant interaction between personal standards and UDSS, $t(636) = 6.12, p < .001$ (sub-sample: $t(384) = 4.88, p < .001$). The significant interaction was probed using the 'pick a point' test of simple slopes (Preacher, Curran, &

⁴ Bootstrapping is preferred over the product of coefficients (ab or $c - c'$) Sobel test because it is not reliant on sample size, it maintains reasonable control of the Type 1 error rate and does not rely on a normal distribution of ab , which is often positively skewed (Preacher & Hayes, 2004; MacKinnon, Lockwood, Hoffman, West, & Sheets, 2002). Bootstrapping randomly generates a large number of samples (e.g., 5000) from the existing data, and computes an indirect effect (ab) in each sample (Preacher & Hayes, 2004). This random resampling is then used to generate confidence intervals for the indirect effect.

Bauer, 2006). Simple slopes were computed at three points: the mean of the UDDS, one standard deviation above the mean, and one standard deviation below the mean (see Figure 3). Results indicated that personal standards were positively associated with anticipatory guilt at all levels of UDDS, however, the strength of the relationship varied between low levels of UDDS ($B = .62, p < .001$; sub-sample: $B = .41, p < .001$), mean levels of UDDS ($B = .45, p < .001$; sub-sample: $B = .29, p < .001$) and high levels of UDDS ($B = .29, p < .001$; sub-sample: $B = .14, p = .001$), with the effect approaching zero as UDDS increased.

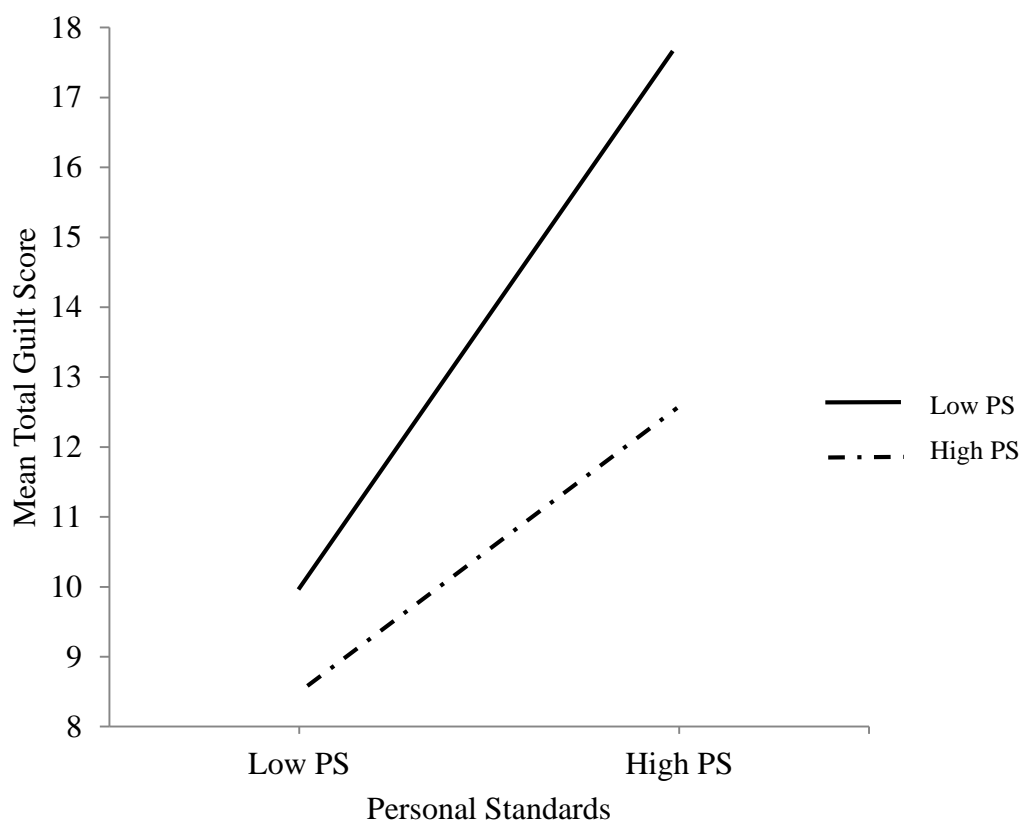


Figure 3. Moderation effect of personal standards (PS) on guilt by underage drinking disengagement scale (UDDS) for total sample ($N = 626$). Results were comparable for the drinker sub-sample ($n = 384$).

Moderated mediation analysis. The simple mediation analysis indicated a partial mediation between personal standards, anticipatory guilt and underage drinking/alcohol-

Table 4

Conditional indirect effect of personal standards on underage drinking and alcohol-related harm through guilt at levels of UDDS.

	Underage drinking ^a (<i>N</i> = 636)		Alcohol-related harm ^b (<i>n</i> = 384)	
	Point Estimate (SE)	95% Bias-corrected bootstrap confidence interval	Point Estimate (SE)	95% Bias-corrected bootstrap confidence interval
Low UDDS	-.0862 (.0158)	-.1178 to -.0565	-.0034 (.0008)	-.0052 to -.0021
Mean UDDS	-.0633 (.0113)	-.0865 to -.0423	-.0023 (.0005)	-.0035 to -.0014
High UDDS	-.0404 (.0080)	-.0579 to -.0264	-.0012 (.0004)	-.0022 to -.0006

Note. 5000 bootstrap samples. a = (0=never consumed full standard drinking, 1 = have consumed full standard drink). b = log10 transformed; results for drinkers only.

related harm. The moderation analysis indicated that the relationship between personal standards and anticipatory guilt was moderated by UDDS. The combination of the mediation and moderation results suggest the possibility of moderated mediation.

Moderated mediation was tested using Hayes' (2012) PROCESS script, model 7, with 5000 bootstraps and a 95% bias corrected CI. Point estimates of the indirect effect of personal standards on underage drinking/alcohol-related harm through anticipatory guilt were taken at low (-1 SD), moderate (mean) and high (+1 SD) levels of UDDS. Results indicated that the indirect effect was significant at all levels of UDDS, however, the strength of the relationship varied between low levels of UDDS, mean levels of UDDS and high levels of UDDS with the effect approaching zero as UDDS increased (see Table 4). These results indicate that more negative judgements about underage drinking (high personal standards) were related to low anticipatory guilt which was associated with reduced odds of drinking and, for underage drinkers, reduced experience of alcohol-related harm. It further indicates that this indirect effect was weaker at high compared to low levels on the UDDS.

Discussion

The current study was the first to develop a moral disengagement scale specific to underage drinking. Consistent with other moral disengagement scales, the UDDS was representative of different disengagement mechanisms yet formed a single latent factor (Bandura et al., 1996; Paciello et al., 2008). This single factor model was evident in both exploratory and confirmatory factor analyses. Although the UDDS was highly correlated with a general measure of moral disengagement, it was more strongly associated, than a general measure of moral disengagement, with adolescents' engagement in underage drinking and underage drinkers' experience of alcohol-related harm. These results suggest that disengagement items specifically relating to underage drinking, not to a range of transgressive behaviours, better capture the relationship between moral disengagement and underage drinking. Such findings are consistent with previous research using behaviour specific moral

disengagement scales (Boardly & Kavussanu, 2007; Caprara et al., 2009; Gini et al., 2014) and emphasise the importance of considering context when assessing moral disengagement.

This study was also the first to examine moral disengagement as part of Bandura's (1986) model of self-regulation within an underage drinking context. In examining the relationship between personal standards, anticipatory guilt, and underage drinking disengagement, a moderated mediation model was utilised. The hypothesised indirect relationship of personal standards on engagement in underage drinking, and drinkers' experience of alcohol-related harm, through anticipatory guilt was partially supported. Personal standards were positively related to underage drinking and alcohol-related harm, both directly and indirectly through anticipatory guilt. These findings support Bandura's (1986) self-regulatory theory, indicating that adolescents who negatively judged underage drinking reported more anticipation of guilt, and more anticipation of guilt was associated with lower engagement in underage drinking and less experience of alcohol-related harm. A possible reason for the partial mediation findings may be that the only negative self-evaluative reaction assessed in the present study was anticipatory guilt. Other self-evaluative reactions, such as anticipatory self-directed anger or sadness (Krettenauer & Johnston, 2011), may also mediate the relationship between personal standards and underage drinking and could be explored in future research.

As expected, the indirect effect of personal standards on underage drinking, and alcohol-related harm, through anticipatory guilt varied at different levels of UDDS. It was weakest for adolescents with high UDDS scores. Consistent with Bandura's (1986) model of self-regulation, these findings highlight that self-regulatory systems do not operate as fixed regulators of behaviour. Even if adolescents held negative judgements about underage drinking, those who highly endorsed underage drinking disengagement strategies, were less likely to anticipate guilt and were at an increased risk of drinking underage or, for adolescents already drinking, of experiencing alcohol-related harm.

These findings have important implications for interventions aimed at delaying the age at which adolescents first consume alcohol and at reducing the harms experienced by those adolescents who do drink. As suggested in previous research, a way to deter, delay or reduce alcohol consumption among adolescents may be to foster the development of personal standards that they should not drink underage (Amonini & Donovan, 2006; Abide et al., 2001; Reyna et al., 2013). For adolescents to develop such standards, it is crucial for underage drinking laws to be perceived as legitimate by adolescents (Amonini & Donovan, 2006), and as being reinforced and reflected in the norms of the wider community (Lipperman-Kreda, Grube, & Paschall, 2010). However, the current research supports Bandura's (1986) self-regulatory model, highlighting that adolescents' beliefs that they should not drink underage will not automatically deter them from drinking, or if they do drink, minimise the alcohol-related harm they experience.

The negative self-evaluative reactions that individuals apply to themselves are critical for behavioural self-regulation (Quiles et al., 2002). In line with Bandura's (1986) self-regulatory model, the findings from this study suggest that if adolescents excuse or justify their underage drinking, through disengagement strategies, they are less likely to adhere to their personal standards as they experience less anticipatory guilt when contemplating drinking underage. It is therefore important to support adolescents in the process of self-regulating their underage drinking. Future intervention programs may benefit from specifically targeting the disengagement strategies adolescents employ to justify their drinking. To achieve this, the factors that may influence adolescents' underage drinking disengagement, such as reduced personal responsibility, could be more extensively examined. Additionally, ways in which justifications or excuses for drinking underage can be identified and challenged could also be explored.

It is necessary to note that the present study was cross-sectional, therefore, although the analyses were conducted based on theoretically tested models (Bandura, 1986), the results are

limited to temporal associations and causal statements cannot be made. Future longitudinal testing should confirm the casual relationship between personal standards, anticipatory guilt, and underage drinking at different levels of underage drinking disengagement. Moreover, to enhance the applicability of the UDDS in interventions, further validation and replication of the current results is required in future studies. A further limitation of this study was that self-report measures were employed. It is possible that students' responses were influenced by social desirability. Participants were, however, assured their responses were anonymous and confidential, and such assurance has been found to increase the accuracy of self-reported response in studies of substance use (Dolcini, Adler, & Ginsberg, 1996; Hanson, Malotte, & Fielding, 1985). Furthermore, some associations may be stronger due to shared method variance. Future research should seek to replicate these findings using multiple forms of assessment of adolescent alcohol use; however, the difficulty of achieving this with an adolescent sample is that there are limited alternatives to self-report assessment. Prior research has found poor to moderate correlations between parent and adolescent substance use reports (McGillicuddy, Rychtarik, Morsheimer, & Burke-Storer, 2007), which questions the validity of parent report of adolescent alcohol use. Similarly, adolescents have been found to over-estimate the alcohol use of peers (Barkin, Smith & DuRant, 2002; Segrist, Corcoran, Jordon-Fleming, & Rose, 2007), which questions the validity of peer report measures.

Despite these limitations, the present study had several strengths. It was the first study to create a moral disengagement scale specific to underage drinking. Such a scale can be used in prevention and intervention programs to target those students who are at an increased risk of underage drinking and experiencing alcohol-related harm. Another major strength of this study was that it adds to the growing body of research on moral disengagement, highlighting the importance of not only examining self-regulatory processes, such as personal standards and negative self-evaluations, but also how these processes may be disengaged. This research emphasises adolescents' capacity to self-regulate their underage drinking behaviour, whilst

also acknowledging that such self-regulation is not automatic. It highlights that intervention programs aiming to prevent underage drinking, or to minimise the harms experienced by underage drinkers, may benefit from specifically targeting adolescents' propensity to endorse underage drinking disengagement strategies.

Chapter 3

Adolescents' Anticipated Social Outcomes from Mothers, Fathers, and Peers for Drinking Alcohol and Being Drunk

Abstract

The main aim of this study was to investigate social factors that may influence adolescents' engagement in underage drinking and experience of alcohol-related harm. It focused on the social outcomes, or social evaluations, adolescents anticipate from three social figures (mothers, fathers, peers), for two alcohol-related behaviours (drink alcohol, being drunk). The sample consisted of 651 (329 female) adolescents (age range: 12-16 years; 81% White). The social outcomes adolescents anticipate for drinking alcohol and for being drunk were assessed by two separate scales. For each scale, exploratory and confirmatory factor analyses verified three separate sub-scales representing anticipated social outcomes for mothers, fathers, and peers. Results revealed that the anticipation of less social censure, from mother and peers, for drinking alcohol, related to greater engagement in underage drinking. While for underage drinkers, less social censure from mothers and peers, for being drunk, most strongly related to greater experience of alcohol-related harm. These findings highlight the important influence of parents and peers on adolescents' alcohol use, and their potential role in intervention programs aimed at reducing underage drinking and its associated harms. This study also emphasises the benefit of not only considering external social influences, but also adolescents' perception of those influences, as potential targets of intervention⁵.

⁵ Manuscript submitted for publication. In subsequent chapters this study is referred to as "Quinn, C., & Bussey, K. (2014). Adolescents' Anticipated Social Outcomes from Mothers, Fathers, and Peers for Drinking Alcohol and Being Drunk. Manuscript submitted for publication.

Adolescents' Anticipated Social Outcomes from Mothers, Fathers, and Peers for Drinking Alcohol and Being Drunk

Alcohol is a widely used substance in many countries throughout the world (World Health Organization [WHO], 2011). In Australia, most people drink alcohol for enjoyment, sociability and relaxation, and at levels which result in few adverse effects (National Health and Medical Research Centre [NHMRC], 2009). However, excessive alcohol use places a significant burden on society. Alcohol-related health-care, lost productivity, road accidents and crime cost Australia \$10.8 billion in 2004 (Collins & Lapsley, 2008). Notable social costs include familial and interpersonal problems (WHO, 2007). Despite laws and restrictions limiting the age when alcohol can be purchased and publicly consumed (18 years in Australia; International Center for Alcohol Policies, 2014), at least one-third of adolescents worldwide consume alcohol underage (Australian Institute of Health and Welfare [AIHW], 2011; Hibell et al., 2012; Johnston, O'Malley, Bachman, & Schulenberg, 2012). Not surprisingly, there are increasing concerns regarding adolescent and youth engagement in hazardous and harmful drinking patterns (Eisenbach-Stangl & Thom, 2009; WHO, 2007). Many adolescents who drink underage experience alcohol-related harm such as vomiting, missing school, and involvement in physical altercations (White & Bariola, 2012). Additionally, there is increasing evidence that alcohol use during adolescence predicts long-term alcohol dependence and abuse (Guttmanova et al., 2011; Wells, Horwood, & Fergusso, 2004). Consequently, given the availability of alcohol, it is important to understand how adolescents self-regulate their drinking, either by refraining from drinking, or minimising the harm they experience if they do drink (Masten, Faden, Zucker, & Spear, 2008).

Self-regulation occurs in a social context (Bandura, 1986). Blanton, Gibbons, Gerrard, Conger, and Smith (1997) argue that adolescents who choose to drink alcohol may experience a range of social outcomes from admiration and acceptance to disinterest or rejection. According to Bandura's (1986) social cognitive theory possible social outcomes of behaviour

are formed by observing the outcomes experienced by others (modelling), by performing the behaviour and personally experiencing the outcomes themselves (enactive experience), and by being informed of what the social standards are and what outcomes will ensue if a specific behaviour is performed (direct tuition). Individuals synthesise these sources of information to form their own anticipatory social outcomes for behaviour (Bandura, 1986). It is the anticipation of future social outcomes that then serve as regulators of behaviour.

Bandura (1986) posits that the anticipation of future social outcomes such as praise, approval, popularity, or increased status act as strong incentives to perform specific behaviours. While the anticipation of disappointment, ostracism, or punishment act as strong deterrents to behavioural performance. Indeed, research has shown that adolescents who anticipate social approval for consuming alcohol are at a greater risk of drinking underage than those who anticipate social sanctions against its consumption (Ford & Hill, 2012; Kristjansson, Sigfusdottir, James, Allegrante, & Helgason, 2010; Mrug & McCay, 2013; Smith & Rosenthal, 1995). Therefore, examining the theoretically proposed connection between adolescents' anticipation of social outcomes and their alcohol use may enhance prevention and intervention programs aimed at reducing underage drinking and its associated harms. The current study extended previous research by examining the social outcomes adolescents anticipate from three social figures (mothers, fathers, and peers) for two alcohol-related behaviours (drinking alcohol and being drunk) in the context of Bandura's (1986) social cognitive theory.

Parents and peers are important social figures who influence adolescents' alcohol use (Bahr, Hoffman, & Yang, 2005). While past research has assessed social outcomes from parents and peers as separate constructs (Aas & Klepp, 1992; Kristjansson et al., 2010), there has been limited differentiation between mothers, fathers, and peers. Therefore, the current study seeks to examine the anticipated social outcomes for mothers, fathers, and peers, separately. In addition to examining whether social outcomes differ for mothers, fathers, and

peers, it is also important to investigate how anticipated social outcomes vary as a function of the type of behaviour performed (Bandura, 1986). In examining underage drinking, most studies have focused on the social sanctions adolescents anticipate for using alcohol or for consuming one or two drinks of alcohol (Ford & Hill, 2012; Mrug & McCay, 2013; Yu, 1998). However, despite associations between intoxication and alcohol-related harm (Ministerial Counsel on Drug Strategy [MCDS], 2006), few, if any, studies have examined the social outcomes adolescent drinkers anticipate for being drunk. Therefore, in order to separately examine the social outcomes adolescents anticipate for drinking alcohol and being drunk, the first aim of the current study was to independently assess anticipated social outcomes by using two separate scales. These scales were based on the current literature, qualitative data and Bandura's (1986) social cognitive theory. The first scale assessed anticipated social outcomes for drinking alcohol. It was comprised of three sub-scales, representing anticipated social outcomes from mothers, fathers, and peers. The second scale was similar in format to the first; however, it differed from it in that it assessed anticipated social outcomes for being drunk, for those adolescents who have already started drinking.

The second aim of this study was to examine the relationship between anticipated social outcomes and engagement in underage drinking and experience of alcohol-related harm. Past research has found that adolescents who anticipate more social approval for consuming alcohol, regardless of the source of that approval, are more likely to drink underage (Song, Smiler, Wagoner, & Wolfson, 2012). Peers' attitude to drinking has been found to be a stronger predictor of adolescent drinking than parents' attitude (Aas & Klepp, 1992; Ford & Hill, 2012; Kristjansson et al., 2010; Yu, 1998). Moreover, the limited research that has examined mothers and fathers separately, found that disapproval from mothers was a stronger predictor of alcohol use than disapproval from fathers (Andrews, Hops, Ary, Tildesley, & Harris, 1993). Therefore, it was expected that anticipated social outcomes from peers, in relation to drinking alcohol, would be most strongly associated with whether or not

students drink underage, followed by anticipatory social outcomes from mothers, then fathers. Since intoxication is closely associated with alcohol-related harm (MCDS, 2006), it was hypothesised that, for underage drinkers, anticipatory social outcomes for being drunk would be more strongly associated with adolescents experiencing alcohol-related harm than would anticipatory social outcomes for drinking. It was further expected that anticipatory social outcomes from peers would be most strongly associated with experiencing harm as a result of drinking, followed by anticipatory social outcomes from mothers, then fathers. The moderating effect of grade and gender was also examined. There is mixed evidence as to whether the relationship between anticipatory social outcomes and underage drinking varies as a function of grade and gender (Aas & Klepp, 1992; Elek, Miller-Day, & Hecht, 2006; Mrug & McCay, 2013; Reifman, Barnes, Dintcheff, Farrell, & Uhteg, 1998). From a theoretical perspective, social cognitive theory (Bandura, 1986) posits that even though the proclivity to anticipate social approval may vary depending on demographic factors, such as grade and gender, when approval is anticipated how it operates, or relates to the prospective behaviour, should be the same regardless of gender or age. Therefore, the relationship between anticipatory social outcomes and engagement in underage drinking, and between anticipatory social outcomes and drinkers' experience of alcohol-related harm, were expected to be consistent across gender and grade.

Despite no expected difference in the relationship between anticipated social outcomes and underage drinking across grade and gender, the proclivity to anticipate social approval may still differ by grade and gender. Therefore, the final aim of the current study was to examine mean differences in anticipated social outcomes for drinking alcohol and being drunk for grade, gender and social figure. In examining gender differences, adolescent females have been found to anticipate greater disapproval from parents, perceive more parental rules about alcohol and experience greater parental control than do adolescent males (Johnston et al. 2012; Mrug & McCay, 2013; Van Zundert, Van Der Vorst, Vermulst, &

Engels, 2006). Furthermore, male college students have been found to anticipate less disapproval from peers compared to parents to a greater extent than have female college students (Cail & LaBrie, 2010). Regarding grade differences, the current study examined underage drinking during mid-adolescence since alcohol use sharply increases during this period (Gutman, Eccles, Peck & Malanchuk, 2011; Henderson, Nass, Payne, Phelps, & Ryley, 2013). Previous research has found that both parents are equally more permissive towards older than younger adolescents' alcohol use (Van der Vorst et al., 2006). Moreover, peer disapproval for alcohol use has been found to decline throughout adolescence (Mrug & McCay, 2013). In examining differences for social figure, previous research has found that all adolescents anticipate more approval for using alcohol from their peers than from their parents (Aas & Klepp, 1992; Yu, 1998). Additionally, the limited research that has separately examined mothers and fathers, has found that fathers use alcohol more often and are more permissive towards alcohol use than mothers (Pettersson, Linden-Boström & Eriksson, 2009; Van Der Vorst, Engels, Meeus & Deković, 2006). Consequently, it was hypothesised that regardless of the adolescents' age or gender, adolescents would anticipate the least social censure for drinking alcohol and being drunk from their peers, followed by the fathers and then their mothers. It was further hypothesised that older adolescents and adolescent males would anticipate less social censure for drinking alcohol and being drunk than would younger adolescents and adolescent females.

Method

Participants

Participants were 651 (329 female) students in grades 8 ($n = 308$, $M_{\text{age}} = 13.51$ years, age range: 12-14 years) and 10 ($n = 343$, $M_{\text{age}} = 15.43$, age range: 14-16 years) from 10 regional and metropolitan non-government secondary schools participated in this study⁶. The participants were 81% White, 8% Asian, 5% Middle Eastern and 6% other. The majority of

⁶ Thirty-six students were absent on the day of testing due to illness or a school excursion. Therefore, although consent was given to participate, these students did not take part in the study.

participants were raised by their biological mother and father (94%), 3% were raised by a biological parent and step parent, 1% were raised by adopted parents or grandparents and the remaining participants were raised only by their biological mother (2%). Of the participants raised only by their biological mother, seven participants identified a relative as a significant male figure who raised them (e.g., grandfather, uncle) and the remaining five participants did not identify a significant paternal figure. The final sample only included those adolescents who identified both a significant maternal and paternal figure who raised them ($N = 646$). Informed written consent was obtained from participants and their parents.

Measures

Lifetime drinking. Consistent with other studies, drinking initiation was assessed using a single item (Koning, Engels, Verdurmen, & Vollebergh, 2010). Students responded to the question “Have you ever tried alcohol?” using a 3-point scale (0 = *No*, 1 = *Yes, a sip or a taste*, 2 = *Yes, I’ve had at least a full standard drink of alcohol*) (McBride, Farrington, Midford, Meuleners, & Phillips, 2006; Newton, Vogel, Teesson, & Andrews, 2009). A full standard drink (10g of alcohol) was visually depicted.

Alcohol-related harm. Experience of alcohol-related harm was measured using the Alcohol-Related Harm index from the CLIMATE School survey (Newton et al., 2009). Only 10 of the 12 items from the CLIMATE Survey were used in this study. Two items were not included as they related to sexual activity after consuming alcohol and were not approved by the ethics committee. Respondents rated on a 6-point scale (1 = *never* to 6 = *12 or more times*) how often in the past three months they experienced harm as a consequence of drinking alcohol. Example items include “how many times did you have a hangover after drinking?” and “on how many occasions did you damage something because you were affected by alcohol?”. The alcohol harm scale had high internal consistency ($\alpha = .89$).

Anticipated social outcomes for drinking alcohol. The Drink ASO Scale consisted of nine items, with three identical items separately measuring adolescents’ anticipated social

outcomes from their mothers, fathers, and friends for drinking alcohol. Friends were used to represent peers since friends have been found to more significantly influence adolescent drinking than have acquaintances or peers more generally (Dal Cin et al., 2009; Song et al., 2012). In line with Bandura's (1986) social cognitive theory, the scale assessed the anticipated social outcomes adolescents expect to receive if they were to drink alcohol, not the actual outcome that has occurred in the past or the outcome a parent or peer reports will occur.

The response item options were derived from a separate qualitative study (Quinn & Bussey, 2012) in which 619 (362 female), predominately White Australian students (80%) in grades 9 ($n = 309$, $M_{\text{age}} = 14.33$ years, age range: 13-16 years) and 11 ($n = 310$, $M_{\text{age}} = 16.21$ years, age range: 15-17) participated. In the qualitative study adolescents were asked an open-ended question regarding the social outcomes they anticipated for drinking alcohol (see Table 1). In accordance with Bandura's (1986) social cognitive theory, open-ended questions were broadly divided into negative, neutral, or positive social outcomes. Of these responses, one positive, neutral, and negative social outcome was included in the Drink ASO Scale. For the positive and neutral classifications, the most frequently endorsed social outcomes across social figure (mother, father and friend) were included. For the negative classification, the second most frequent social outcome was included. This was because "disappointed" is more consistent with the theoretical construct of a social evaluation of the person, instead of "stupid or irresponsible" which is an attribution towards the behaviour.

For the Drink ASO, students were presented with the stem "You are drinking an alcoholic drink. Your (mother) would..." the three item responses were measured on a 4-point scale. The response items were: 1 = *be totally disappointed with you for drinking alcohol* to 4 = *be totally pleased with you for drinking alcohol*; 1 = *think it is totally not ok that you are drinking alcohol* to 4 = *think it is totally ok that you are drinking alcohol*; 1 = *totally care that you are drinking alcohol* to 4 = *totally not care that you are drinking alcohol*.

Anticipated social outcomes for being drunk. The Drunk ASO Scale consisted of

Table 1

Responses to six open-ended questions: “What would your mother/father/friend think of you for drinking alcohol /being drunk?”

Anticipated Social Outcome	Mother	Father	Friend
Negative Social Outcome	77.9 (91.9)	69.7 (85.9)	40.3 (58.7)
<i>Disapproving, sad, upset</i>	9.0 (6.1)	5.8 (6.0)	4.3 (3.3)
<i>Angry, mad, furious</i>	14.3 (20.4)	14.9 (23.3)	3.0 (5.3)
<i>Shock, surprise</i>	1.3 (1.6)	1.3 (0.8)	5.3 (3.2)
<i>Stupid, irresponsible</i>	18.2 (21.5)	15.3 (20.2)	12.1 (19.6)
<i>Teaching, bad decision, wrong choice, too young, against law</i>	6.7 (4.9)	4.6 (4.5)	3.0 (5.0)
<i>Hanging round bad group, bad friends</i>	0.3 (0.7)	0.3 (0.7)	0.0 (0.0)
<i>In trouble, lecture, grounding</i>	1.8 (3.0)	2.2 (4.0)	0.0 (0.0)
<i>Beating, ‘kick out of home’</i>	2.3 (3.3)	2.5 (2.6)	0.0 (0.0)
<i>Not be my friend anymore, avoid</i>	0.0 (0.0)	0.0 (0.0)	0.3 (1.0)
<i>Disappointed, loss of trust/respect, embarrassed, ashamed</i>	17.9 (21.7)	16.7 (18.2)	5.5 (8.8)
<i>Disgust, repulsion, screw up, unworthy, loser, idiot</i>	2.6 (2.5)	2.7 (3.5)	4.0 (5.7)
<i>Where did I go wrong? What didn’t I teach you?</i>	0.3 (1.3)	0.5 (1.0)	0.0 (0.0)
<i>Concern, worry, help, call parents, Why?</i>	1.0 (2.6)	1.0 (1.8)	1.5 (5.3)
Neutral Social Outcome	4.8 (2.8)	6.5 (3.5)	19.2 (10.6)
<i>Not care, not notice, nothing</i>	4.8 (2.8)	6.5 (3.5)	17.4 (9.7)
<i>My choice, my decision</i>	0.0 (0.0)	0.0 (0.0)	1.8 (1.0)
Positive Social Outcome	2.5 (1.6)	3.6 (3.0)	29.9 (19.0)
<i>Ok if small amount; as long as I don’t pass out</i>	13.0 (1.0)	17.6 (2.1)	2.3 (0)
<i>Happy, grateful</i>	0.0 (0.2)	0.0 (0.0)	2.6 (1.2)
<i>Smart, good, sensible, responsible</i>	0.2 (0.0)	0.7 (0.7)	1.2 (0.7)
<i>Ok, alright, that’s normal</i>	1.5 (0.5)	1.7 (0.2)	9.6 (3.8)
<i>Cool, legend, gangster, I’m awesome</i>	0.0 (0.0)	0.3 (0.0)	6.8 (2.3)
<i>Encourage, joining in, finally</i>	0.5 (0.0)	0.7 (0.3)	6.9 (2.7)
<i>Funny, amusing</i>	0.0 (0.8)	0.2 (1.0)	0.5 (8.3)
Other (e.g. I don’t know, it depends)	2.6 (3.3)	3.2 (4.5)	10.6 (11.6)

Note. In the table the percentage of responses for “drinking” items is presented first followed by percentage of responses for “being drunk” items in parentheses.

Output is based on a sample of 619 (362 female) students, predominately White Australian (80%) in grades 9 ($n = 309$, $M_{age} = 14.33$ years, age range: 13-16 years) and 11 ($n = 310$, $M_{age} = 16.21$ years, age range: 15-17) from four non-government secondary schools. Informed written consent was obtained from participants and passive consent was obtained from their parents.

In accord with Bandura’s (1986) social cognitive theory open-ended questions were broadly divided into negative, neutral or positive social outcomes. The sub-categories within these responses were developed based on the modified analytic induction method (Gilgun, 1995). Twenty percent of all questions were double-coded. There was an acceptable level of agreement with the kappa statistic for lower level categories ranging from .55 to .90 (Landis & Koch, 1977).

nine items, with three identical items separately measuring adolescents' anticipated social outcomes from their mothers, fathers, and friends for being drunk. Students were presented with the stem "You are drinking alcohol and it is obvious you are drunk. Your (mother) would..." The response items were: 1 = *be totally disappointed with you for being drunk* to 4 = *be totally pleased with you for being drunk*; 1 = *think it is totally not ok that you are drunk* to 4 = *think it is totally ok that you are drunk*; 1 = *totally care that you are drunk* to 4 = *totally not care that you are drunk*. The response item options were derived from qualitative study (see Table 1) using the same criteria as the Drink ASO Scale.

Missing Data

There were small amounts of missing data at the item level (0 to 2.8%). All missing data was imputed using the expectation-maximisation (EM) algorithm in SPSS. This procedure has been shown to be superior to means substitution, pair-wise deletion, or list-wise deletion (Enders, 2001; Schafer & Graham, 2002).

Procedure

Surveys were administered in classrooms or halls in groups of approximately 20 to 100 students. Students were assured verbally and in writing of the anonymity of their responses. Students were supervised by research assistants and their subject teacher. To ensure confidentiality, students were asked not to discuss their answers with peers. Teachers remained at the front of the classroom throughout testing. All questions during testing were answered by trained research assistants. Students took 45 to 50 minutes to complete the questionnaire. All participants entered a draw to win one of forty cinema tickets.

Results

Underage Drinking

Of the total sample 74% of students had tried alcohol but only 37% of students had consumed at least a full standard drink of alcohol. Consistent with other studies, students were classified as *drinkers* if they had consumed a full standard drink of alcohol (Agostinelli &

Grube, 2005; Callas, Flynn & Wordon, 2004; Kelly et al., 2011). Therefore, for subsequent analyses engagement in underage drinking is assessed through a dichotomised version of the lifetime drinking item (0 = *have not consumed a full standard drink in their lifetime*; 1 = *have consumed a full standard drink in their lifetime*).

The *drinker* sub-sample included those students who had consumed at least one standard drink in their lifetime. In this sample there were 244 (145 male) students in grades 8 ($n = 55$, $M_{\text{age}} = 13.53$ years, age range: 13-15 years) and 10 ($n = 189$, $M_{\text{age}} = 15.46$, age range: 15-16 years).

Statistical Analysis

The results are presented in five sections. First, the results of the exploratory and confirmatory factor analyses for the Drink and Drunk ASO Scales are reported. For the Drink ASO Scale factor analyses were conducted on the total sample. For the Drunk ASO Scale factor analyses were conducted on the drinker sub-sample. Second, repeated measures analyses of variance are presented examining differences in the ASO Scales by grade, gender, and social figure (mothers, fathers, peers). The Drink ASO Scale was examined using the total sample and the Drunk ASO Scale was examined using the drinker sub-sample. Third, correlations between all measures in the study are presented for the total sample and for the drinker sub-sample. Fourth, a hierarchical logistic regression is reported examining the relationship between anticipated social outcomes for drinking alcohol and engagement in underage drinking, for the total sample. Finally, a hierarchical logistic regression is presented examining the relationship between anticipated social outcomes for being drunk and experience of alcohol-related harm for the drinker sub-sample.

Structure of the Drink and Drunk ASO Scales

To examine the factor structure of the Drink and Drunk ASO Scales each 9-item scale was first subjected to an exploratory factor analysis using principle axis extraction and Oblimin rotation. The Oblimin rotation was used because mother, father and peer items, for

Drink and Drunk ASO Scales, were expected to correlate. Confirmatory factor analyses (CFA) were then conducted using maximum likelihood estimation to examine whether the factor structure obtained in the exploratory factor analysis could be replicated. To determine goodness-of-fit of the models the χ^2 statistic and several other fit indices were examined. Since the χ^2 statistic is sensitive to sample size and the number of variables included in a model, the Comparative Fit Index (CFI), Tucker Lewis Index (TLI) and Root Mean Square Error of Approximation (RMSEA) were also examined (Hox & Bechger, 2001; Kaplan, 2000). Hu and Bentler (1999) suggest that good model fit is indicated by CFI and TLI values of .95 or higher and an RMSEA value of .06 or lower. However, Browne and Cudeck (1993) and Vandenberg and Lance (2000), recommend CFI and TLI values of .90 and a RMSEA value of .08 as the criterion for reasonable model fit. The Hu and Bentler (1999) criteria were used as higher confidence limits and Vandenberg and Lance's (2000) cut-offs were used as accepted lower limits of the model fit. Due to similarity in wording, the errors of the three sets of items with the same stem response were allowed to correlate since the failure to allow these correlations could result in a misleading interpretation of the model (Cole, Ciesla, & Steiger, 2007).

Measurement and structural invariance across grade and gender were examined for both scales. Configural invariance (i.e., same pattern of fixed and free parameters without equality constraints) was first determined through an examination of the unconstrained model. Then, the factor loadings were constrained to be the same across groups and finally the parameters and structural components of the model were constrained to be equivalent across grade and across gender. When the constrained models were compared to the unconstrained model, a $\Delta\text{CFI} < .01$ was used to determine measurement and structural invariance (Cheung & Rensvold, 2002).

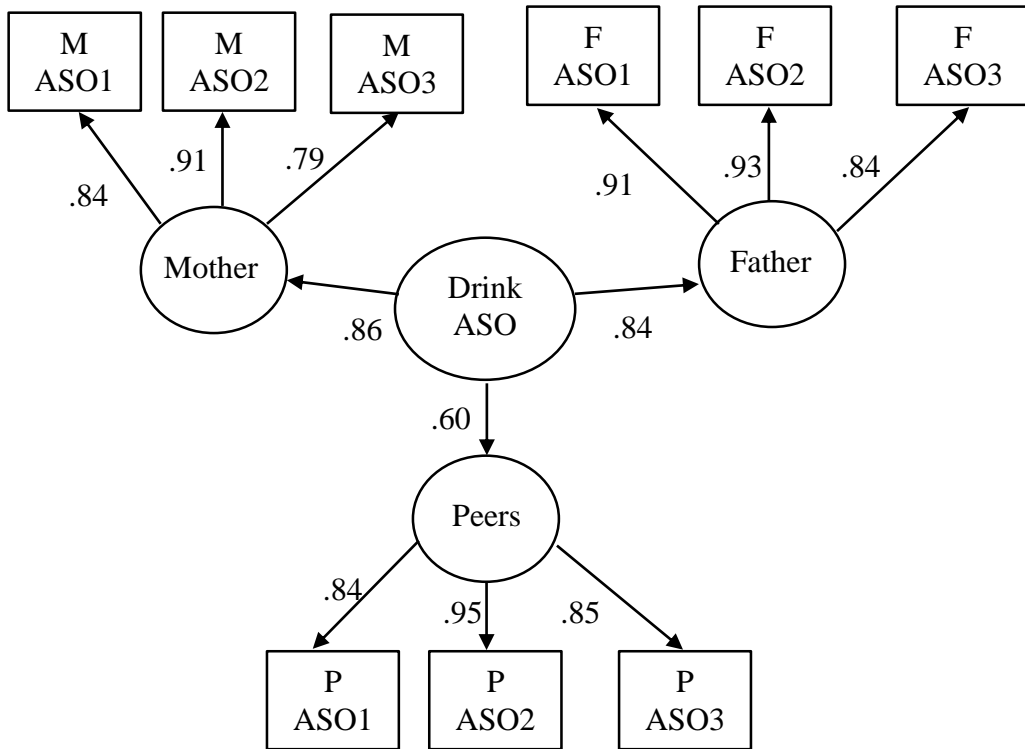
Drink ASO Scale. The scree plot from the exploratory factor analysis indicated a four-factor solution. Three factors reflected items for mothers, fathers, and peers. The fourth

factor did not have any factor loadings above .25. Therefore, a factor analysis was conducted with a three-factor solution specified. This resulted in a meaningful three-factor solution: mother, father, and peers which accounted for 84% of the variance of the Drink ASO scale. The final correlation matrix revealed correlations between the three factors ranging from .50 to .72. The mother, father, and peers sub-scales consisted of three items each, with all factor loadings above .70. The Cronbach Alpha reliabilities indicated good internal consistency for the Drink ASO sub-scales (mother: $\alpha = .88$; father: $\alpha = .92$; peers: $\alpha = .91$).

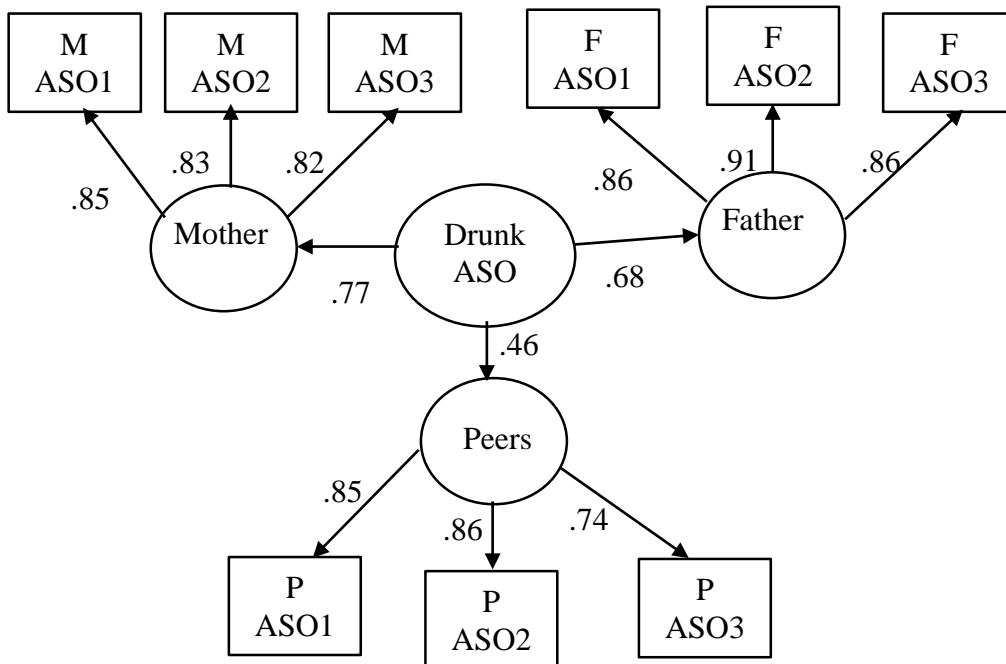
The model for the CFA, depicted in Figure 1, obtained reasonable fit for the Drink ASO Scale, $\chi^2(15, N = 646) = 41.14, p < .001, CFI = .99, TLI = .99, RMSEA = .05$.⁷ The group analyses for gender revealed an unconstrained model with good fit to the data, $\chi^2(30, N = 646) = 60.37, p = .001, CFI = .99, TLI = .98, RMSEA = .04$, demonstrating configural invariance. Invariance across gender was indicated for the factor loadings, $\Delta\chi^2(6) = 5.25, p = .512, \Delta CFI < .001$, and for the structural components of the model, $\Delta\chi^2(9) = 15.69, p = .074, \Delta CFI = .001$. For grade, the unconstrained model indicated good fit to the data, $\chi^2(30, N = 646) = 65.33, p < .001, CFI = .99, TLI = .98, RMSEA = .04$, demonstrating configural invariance. Invariance across grade was also indicated for the factor loadings, $\Delta\chi^2(6) = 2.59, p = .858, \Delta CFI = .001$ and for the structural components of the model, $\Delta\chi^2(9) = 11.00, p = .276, \Delta CFI = .002$.

Drunk ASO Scale. The scree plot from the exploratory factor analysis indicated a four-factor solution. Three factors reflected items for mother, father, and peers. The fourth factor did not have any factor loadings above .25. Therefore, a factor analysis was conducted with a three-factor solution specified. This resulted in a meaningful three-factor solution: father, peers and mother, which accounted for 81% of the variance for the Drunk ASO Scale. The final correlation matrix revealed correlations between the three factors ranging from .32

⁷ Due to the large sample size it was deemed important to replicate the factor structure in a smaller sample. The total sample was randomly divided into two. An exploratory factor analysis was conducted on the first sample ($N = 327$). The same three-factor solution was obtained as had been found for the whole total sample. A CFA was conducted on the second sample. Adequate model fit was obtained for the three-factor model ($\chi^2(15, N = 319) = 17.19, p < .001, CFI = .99, TLI = .99, RMSEA = .02$).



a) Drink ASO scale



b) Drunk ASO scale

Figure 1. Confirmatory factor analysis for the Drink and Drunk ASO Scales.

M = mother items; F = father items; P = peer items; ASO1 = *totally disappointed to totally pleased*; ASO2 = *totally not ok to totally ok*; ASO3 = *totally not care to totally care*. Errors of ASO1 items were allowed to correlate as were the ASO2 and ASO3 items.

to .53. The mother, father, and peers sub-scales consisted of three items each with all factor loadings above .70. The Cronbach Alpha reliabilities indicated good internal consistency for the drunk ASO sub-scales (mother: $\alpha = .87$; father: $\alpha = .91$; peers: $\alpha = .85$).

The model for the CFA, depicted in Figure 1, obtained excellent fit for the Drink ASO Scale, $\chi^2(15, N = 244) = 19.71, p = .183, CFI = 1.00, TLI = .99, RMSEA = .04$.⁸ The gender groups analysis revealed an unconstrained model which indicated good fit to the data, $\chi^2(30, N = 244) = 34.40, p = .265, CFI = 1.00, TLI = .99, RMSEA = .03$, demonstrating configural invariance. Invariance across gender was indicated for the factor loadings, $\Delta\chi^2(6) = 13.17, p = .040, \Delta CFI = .006$, and for the structural components of the model, $\Delta\chi^2(9) = 14.84, p = .095, \Delta CFI = .006$. For grade, the unconstrained model indicated satisfactory fit to the data, $\chi^2(30, N = 244) = 36.44, p = .194, CFI = 1.00, TLI = .99, RMSEA = .03$, indicating configural invariance. Invariance across grade was also indicated for the factor loadings, $\Delta\chi^2(6) = 5.93, p = .431, \Delta CFI < .001$ and for the structural components of the model, $\Delta\chi^2(9) = 6.40, p = .699, \Delta CFI < .001$.

Social Figure Effects by Grade and Gender

The data used in the present study are nested (students within different schools). Therefore, analyses were conducted to examine the potential effect of clustering of responses within schools on subsequent analyses. The linear mixed model procedure in SPSS was used to examine the possible lack of independence of responses which could have resulted from belonging to a particular school. Each of the variables within the study was fitted to a random intercept model, with school entered as a random factor. The random factor of school was not significantly different from zero for any of the analyses. Therefore, clustering of schools was not accounted for in subsequent analyses.

Although no grade or gender differences were found for the structure of the Drink and

⁸ Due to the large sample size it was deemed important to replicate the factor structure in a smaller sample. The total sample was randomly divided into two. An exploratory factor analysis was conducted on the first sample ($N = 124$). The same three-factor solution was obtained as had been found for the whole total sample. A CFA was conducted on the second sample. Adequate model fit was obtained for the three-factor model ($\chi^2(15, N = 120) = 18.49, p = .238, CFI = .99, TLI = .99, RMSEA = .04$).

Drunk ASO scales, mean gender and grade differences were expected on the individual sub-scales. Therefore, to examine grade, gender, and social figure differences for the Drink and Drunk ASO Scales two repeated measures analyses of variance (ANOVA) were conducted using general linear modelling. The first ANOVA was conducted on the total sample, with the Drink ASO Scale as the dependent variable. The second ANOVA was conducted on the drinker sub-sample with the Drunk ASO Scale as the dependent variable. The repeated measures ANOVA design for both analyses was 2(gender: adolescent male, adolescent female) x 2(grade: 8, 10) x 3(social figure: mother, father, peers) with gender and grade as between subject factors and social figure as a within subject factor. Where significant interactions were examined post hoc, the Bonferroni method was used with an overall alpha of .01.

Drink ASO. The ANOVA yielded significant main effects for gender, $F(1, 642) = 35.63, p < .001$, partial $\eta^2 = .05$, grade, $F(1, 642) = 103.54, p < .001$, partial $\eta^2 = .14$ and social figure, $F(2, 641) = 454.95, p < .001$, partial $\eta^2 = .59$. These significant main effects were qualified by the significant two-way interactions between social figure and gender, $F(2, 641) = 19.49, p < .001$, partial $\eta^2 = .06$ (see Figure 2), and between social figure and grade, $F(2, 641) = 8.80, p < .001$, partial $\eta^2 = .03$ (see Figure 3).

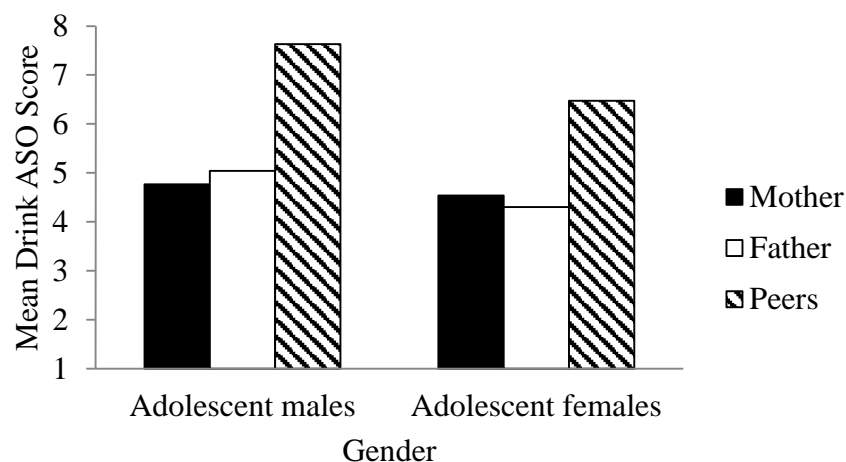


Figure 2. Mean Drink ASO score as a function of social figure and gender.

For the interaction between social figure and gender, adolescent males and females anticipated less social censure from their peers than from their mothers, $t(644) = 24.08, p < .001$, $t(644) = 16.54, p < .001$ and fathers, $t(644) = 21.20, p < .001$, $t(644) = 18.09, p < .001$. Adolescent males anticipated less social censure from their fathers than their mothers, $t(644) = 3.36, p = .003$. However, adolescent females anticipated more social censure from their fathers than their mothers, $t(644) = 2.88, p = .012$. Further comparisons revealed that adolescent males anticipated less social censure from their fathers and peers than did adolescent females $t(644) = 5.20, p < .001$, $t(644) = 6.98, p < .001$. However, adolescent males and females did not significantly differ in the social censure they anticipated from their mothers, $t(644) = 1.70, p = .089$.

For the interaction between social figure and grade (see Figure 3) students in Grade 8 and Grade 10 anticipated less negative social outcomes from their peers than from their mothers, $t(644) = 17.31, p < .001$, $t(644) = 23.52, p < .001$ and fathers, $t(644) = 16.34, p < .001$, $t(644) = 23.14, p < .001$. As expected, there was no significant difference in the level of social censure that Grade 8 and Grade 10 students anticipated receiving from their fathers compared to their mothers, $t(644) = 0.80, p = 1.000$, $t(644) = 0.33, p = 1.000$. Further comparisons revealed that Grade 10 students anticipated less social censure from their mothers, fathers, and peers than did Grade 8 students, $t(644) = 7.75, p < .001$, $t(644) = 6.60, p < .001$, $t(644) = 9.93, p < .001$.

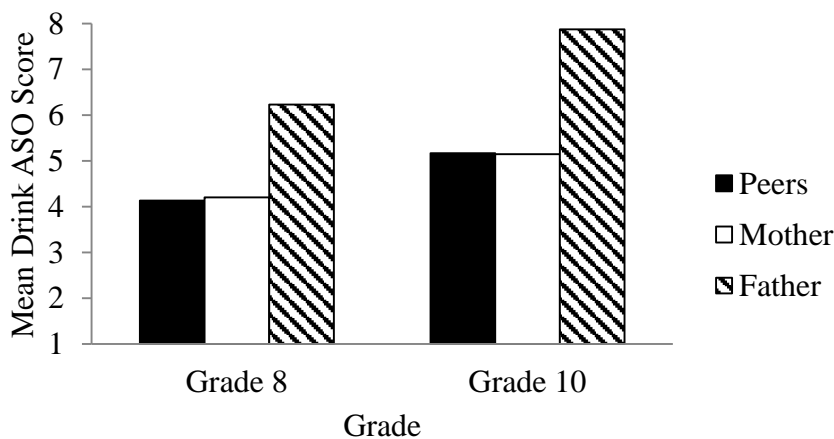


Figure 3. Mean Drink ASO score as a function of social figure and grade.

Drunk ASO. This analysis yielded significant main effects for social figure, $F(2, 239) = 169.56, p < .001$, partial $\eta^2 = .59$. The main effects for gender, $F(1, 240) = 3.65, p = .057$, partial $\eta^2 = .02$, and grade, $F(1, 240) = 1.35, p = .247$ (Grade 8: $M = 5.16, SD = 0.18$; Grade 10: $M = 5.39, SD = 0.10$) were not significant.

The significant main effect for social figure was qualified by the significant two-way interaction between social figure and gender, $F(2, 639) = 5.44, p = .005$, partial $\eta^2 = .04$ (see Figure 4). Adolescent males and females anticipated less social censure from their peers than from their mothers, $t(246) = 16.22, p < .001$, $t(246) = 9.23, p < .001$, and father, $t(246) = 12.59, p < .001$, $t(246) = 9.81, p < .001$. Adolescent males anticipated less social censure from their fathers than their mothers, $t(644) = 3.41, p = .002$. However, this effect was not significant for adolescent females, $t(644) = 0.75, p = 1.000$. Further comparisons revealed that adolescent males anticipated less social censure from their fathers and peers than did adolescent females, $t(644) = 2.21, p = .028$, $t(644) = 2.37, p = .018$. However, adolescent males and females did not significantly differ in the social censure they anticipated from their mothers, $t(644) = 0.62, p = .189$.

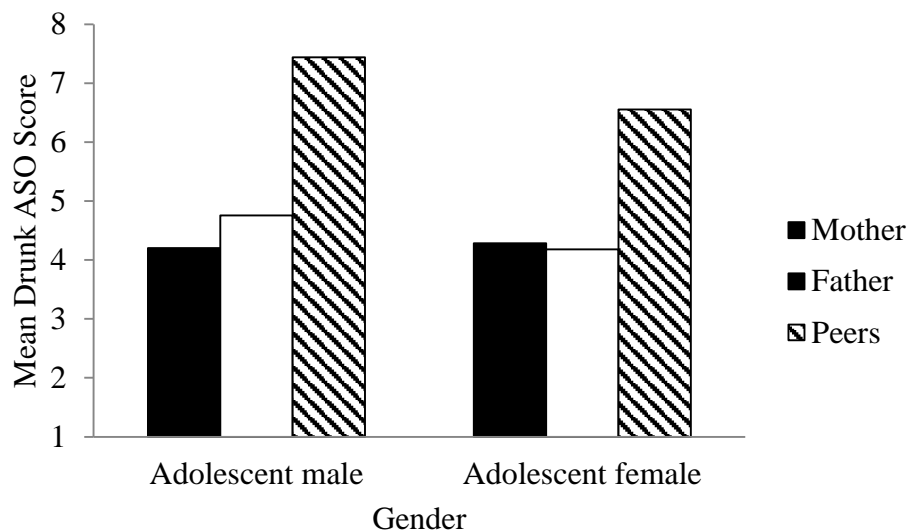


Figure 2. Mean Drunk ASO score as a function of social figure and gender.

Table 2

Summary of Intercorrelations, Means, and Standard Deviations for Analysed Variables for the total sample ($N = 646$) and drinker sub-sample ($n = 244$).

	Alcohol Harm ^b	2.	3.	4.	5.	6.	7.	<i>M</i>	<i>SD</i>
1. Underage drinking ^a	—	.46***	.42***	.54**	.37***	.34***	.48***	402	62.2
2. Drink ASO - Mother	.10	—	.67**	.47***	.64***	.50***	.38***	4.67	1.78
3. Drink ASO - Father	.14*	.56**	—	.48***	.45***	.71***	.39***	4.69	1.91
4. Drink ASO - Peers	.17**	.20***	.26***	—	.36***	.35***	.79***	7.08	2.34
5. Drunk ASO - Mother	.31***	.61***	.33***	.23***	—	.55***	.41***	3.67	1.25
6. Drunk ASO - Father	.24***	.39***	.69***	.15*	.48***	—	.41***	3.99	1.48
7. Drunk ASO - Peers	.24***	.12	.18**	.66***	.32***	.29***	—	5.91	2.20
<i>M</i>	1.09	5.73	5.73	8.71	4.25	4.63	7.26		
<i>SD</i>	0.12	1.82	1.98	1.73	1.55	1.69	1.91		

Note. Intercorrelations for the total sample are presented above the diagonal, and intercorrelations for the drinker sub-sample are presented below the diagonal. Means and standard deviations for the total sample are presented in the vertical columns, and means and standard deviations for the drinker sub-sample are presented in horizontal rows. For all ASO scales higher scores are indicative of less social censure and higher alcohol harm and underage drinking scores are indicative of higher likelihood of drinking underage.

^aNumber and frequency presented instead of mean and standard deviation (0=never consumed a full standard drink); ^bLog10 transformed due to initial skew.

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

Correlations

Means, standard deviations and correlations between the observed variables are depicted in Table 2 for the total sample and for the drinker sub-sample. There was a significant positive relationship between all ASO sub-scales. These correlations were stronger for the total sample than for the drinker sub-sample. For the total sample the Drink and Drunk ASO sub-scales were all positively related to engagement in underage drinking and this positive association was stronger for the Drink than the Drunk ASO sub-scales. For the drinker sub-sample, the Drunk ASO sub-scales were all positively associated with alcohol harm. However, of the Drink ASO sub-scales, only the peers and father sub-scale were significantly associated with alcohol-related harm and this relationship was weaker than for the Drunk ASO sub-scales.

Engagement in Underage Drinking and Anticipated Social Outcomes

To examine the association between the Drink ASO sub-scales and engagement in underage drinking a logistic regression was conducted with underage drinking as the dependent variable and grade and gender as control variables. To test for possible differences in the results between grades and gender all Drink ASO sub-scales were initially interacted with grade and gender. None of these interactions were significant and were therefore removed from the analysis. The final model is presented in Table 3 (see Model 1).

Grade and gender were significantly associated with underage drinking, $\chi^2(2, N=646) = 118.32, p < .001$ and the *pseudo R*² was 23%. The Drink ASO sub-scales were also significantly associated with underage drinking, $\chi^2(3, N=646) = 183.01, p < .001$ with the *pseudo R*² increasing to 51%. The sub-scales for peers and mother significantly predicted underage drinking. Less social censure from mother or peers was related to an increased probability of engaging in underage drinking.

Alcohol-related Harm and Anticipated Social Outcomes

To examine the association between the Drunk ASO sub-scales and alcohol-related harm, for underage drinkers, a linear regression was conducted on the drinker sub-sample with alcohol-related harm as the dependent variable and grade and gender as control variables. Possible differences between grades and gender were tested by including

Table 3

Hierarchical Regressions Analyses for the Effects of Drink ASO on Engagement in Underage Drinking and the Effects of Drunk ASO on Alcohol-related Harm.

	Model 1			Model 2	
	ΔR^2	OR	95% CI	ΔR^2	β
Step	.23***			.02	
Grade		3.11***	2.02-4.79		.11
Gender		0.79	0.51-1.22		.13*
Step	.28***				
Drink SOE – Mother		1.39***	1.19-1.63		
Drink SOE – Father		1.11	0.97-1.28		
Drink SOE – Peers		1.64***	1.45-1.86		
Step				.13***	
Drunk SOE – Mother					.21**
Drunk SOE – Father					.10
Drunk SOE – Peers					.16*

Note. OR = odds ratio; CI = confidence interval. Model 1 was conducted on the total sample ($N = 646$); has engagement in underage drinking (0=*never consumed a full standard drink*, 1 = *have consumed full standard drink*) as the dependent variable and depicts logistic regression odds ratio with Nagelkerke R^2 . Model 2 was conducted on the drinker sub-sample ($n = 244$); has alcohol-related harm (log10 transformed) as the dependent variable and depicts standardised ordinary least squares (OLS) regression coefficients with OLS R^2 .

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

interactions between gender and grade and each of the ASO sub-scales. None of these interactions were significant and were therefore removed from the analysis. The final model is presented in Table 3 (see Model 2).

Grade and gender did not significantly explain any of the variance in alcohol-related harm scores. When the Drunk ASO sub-scales were added to the model, they significantly explained 13% of the variance in alcohol-related harm score, $R_{adj}^2 = .13$, $F(3, 238) = 12.41$, $p < .001$. The sub-scales for peers and mothers were significantly associated with alcohol-related harm. Less social censure from mothers or peers were related to higher levels of alcohol-related harm.

Discussion

This is the first study to separately examine the social outcomes adolescents anticipate from their mothers, fathers, and peers for drinking alcohol and being drunk using a social cognitive framework (Bandura, 1986). As expected, anticipated social outcomes from mothers, fathers, and peers formed separate sub-scales, within the Drink and Drunk ASO Scales, suggesting that anticipated social outcomes from different social figures, although related, are conceptually independent. Furthermore, low levels of social censure for drinking alcohol were correlated with greater engagement in underage drinking in the overall sample. However, when underage drinkers were examined separately, low levels of social censure for being drunk were most strongly correlated with adolescents' experience of alcohol-related harm.

Anticipated social outcomes from peers were more strongly associated with engagement in drinking than were anticipated social outcomes from mothers or fathers, which is in agreement with other literature and highlights the importance of peer influence on underage drinking (Allen et al., 2003; Ford & Hill, 2012; Mrug & McCay, 2013; Nash, McQueen, & Bray, 2005; Yu, 1998). Although social approval from peers related to increased engagement in underage drinking, social censure also related to increased abstinence. Often research

emphasises peers as negative influences on adolescents' alcohol use. However, the protection peers may offer against engagement in underage drinking should also be emphasised (Allen, Chango, Szewedo, Schad, & Marston, 2012; Maxwell, 2002). As Kumar, O'Malley, Johnston, Schulenberg, and Bachman (2002) suggest, creating an environment of disapproval of substance use within schools is likely to reduce adolescent alcohol use. Creating such an environment may enable peers to more actively express disapproval of alcohol use and consequently reduce the potential of adolescents perceiving social acceptance of underage drinking.

It is notable that anticipated social outcomes from mothers related more strongly to underage drinkers experiencing alcohol-related harm than did anticipated social outcomes from peers. This finding emphasises the importance of parents, even after adolescents start drinking, and the role they play in curbing or facilitating the alcohol-related harm underage drinkers' experience. In examining the implication of these findings it is necessary to note that the majority of adolescents anticipated social censure from their mothers for drinking alcohol and being drunk. Therefore, it is not just overt approval that relates to drinking but also the degree of social censure adolescents anticipate receiving. As Nash et al. (2005) found, it is *strong* parental disapproval that deters adolescent alcohol use. This has important implications for interventions.

Parents may introduce their children to alcohol in "supervised settings" with the aim of minimising alcohol-related harm and providing a safe social development to using alcohol (Gilligan, Kypri, & Lubman, 2012). Some research suggests that such practices can reduce adolescents' excessive alcohol consumption (Foley, Altman, Durant, & Wolfson, 2004). However, other research suggests that parental provision of alcohol may normalise underage drinking and implicitly condone more risky drinking behaviours (Komro, Maldonado-Molina, Tobler, Bonds, & Muller, 2007; Livingston, Testa, Hoffman, & Windle, 2010). An area for future research is to determine how adolescents interpret parental supply of alcohol. This

study shows that adolescents do anticipate different social outcomes for drinking alcohol and being drunk and that, particularly in relation to mothers, it is the social sanctions underage drinkers anticipate receiving for being drunk, not for drinking, which relates to their experience of alcohol-related harm. Particularly in Australia, there is an increased focus on the need to educate and support parents in relation to their adolescents' alcohol use (Gilligan et al., 2012; Hayes, Smart, Toumbourou, & Sanson, 2004). To aid such efforts, future research could examine how parental supply of alcohol in different quantities, different settings, and within different ethnic groups impacts adolescents' perception of the social outcomes they will receive if they drink alcohol or become drunk.

This study found that anticipated approval or censure from fathers did not relate to adolescent engagement in underage drinking or experience of alcohol-related harm in the presence of anticipated social outcomes from mothers and peers. It may be that fathers exert their influence on adolescents indirectly through mothers (Cabrera, Fitzgerald, Bradley, & Roggman, 2007; Mares, Van Der Vorst, Engels, & Lichtwarck-Aschoff, 2011). Other studies have shown that fathers are generally less present at home and spend less time with adolescents than do mothers (Lamb, 2000; William & Kelly, 2005). Adolescents also feel more emotionally close to and cared for by their mothers than their fathers (Ackard, Neumark-Sztainer, Story & Perry, 2006; William & Kelly, 2005) and have greater ease communicating with their mothers than their fathers (Luk, Farhat, Iannotti, & Simons-Morton, 2010). Furthermore, adolescents are more likely to ask mothers about alcohol than fathers (Kelly, Comello, & Hunn, 2002) and mothers are more likely than fathers to initiate conversations about alcohol (Van Der Vorst, Engels, Meeus, Deković, & Van Leeuwe, 2005). Therefore, it may be that the negative social outcomes anticipated from mothers are more salient for adolescents than those from fathers and are consequently more strongly related to their engagement in underage drinking and experience of alcohol-related harm. Future research should explore maternal and paternal influences on underage drinking to a greater

extent and what factors account for the stronger influence of anticipated social outcomes associated with mothers than with fathers.

As hypothesised, when the relationships between anticipated social outcomes and engagement in underage drinking, and experience of alcohol-related harm, were examined no grade or gender interactions were significant. The lack of significant interactions suggests that the relationship between anticipated social outcomes and underage drinking is the same regardless of the gender or age of the adolescent. However, mean differences in anticipated social outcomes were found for adolescent males and females and for older and younger mid-adolescents.

In line with previous research, all adolescents anticipated less social censure from their peers than from their mothers or fathers (Mrug & McCay, 2013). This finding was consistent for social outcomes related to drinking alcohol and for being drunk. Unexpectedly, adolescent males and females differed in the social outcomes they anticipated from their mothers compared to their fathers. Adolescent males anticipated less social censure from their fathers than their mothers for drinking alcohol and being drunk. However, adolescent females anticipated more social censure from their fathers than their mothers for drinking alcohol and expected the same level of social censure from their fathers and mothers for being drunk. Further comparisons of this interaction revealed that while adolescent males and females anticipated the same level of social censure from their mothers, adolescent males anticipated less social censure from their fathers than did adolescent females. Adolescent males may anticipate less social censure from their fathers, for drinking alcohol and being drunk, than adolescent females due to a broader cultural acceptability of drinking among males (Wilsnack, Volgeltanz, Wilsnack, & Harris, 2000). In Australia, despite a recent increase in the prevalence of female drinking, males still typically drink more alcohol than females (AIHW, 2011). Drinking has also historically been discouraged among women and encouraged as a source of mateship, solidarity and virility for men (Sargent, 1973). This may

also explain why adolescent males anticipated less social censure from their peers, for drinking and being drunk, than did adolescent females.

As expected, older students anticipated less social censure from their mothers, fathers, and peers for drinking alcohol than did younger students (Van Der Vorst et al., 2006; Mrug & McCay, 2013). Surprisingly, in the drinker sub-sample, older and younger students anticipated the same level of social censure for being drunk. One reason for these different age-related findings, depending on the amount of alcohol consumed, may be because drinking alcohol is socially acceptable once individuals reach the 'legal drinking age', and older students are closer to that age. However, intoxication is associated with harm for all ages (MCDS, 2006), and therefore may be considered unacceptable regardless of the age of the adolescent.

The current study had several limitations. First, over 80% of the current sample identified as White Australian, making it difficult to investigate differences in anticipated social outcomes for different racial and ethnic groups. However, the use of an Australian sample contributed to the sparse research investigating parental influences on alcohol use for Australian adolescents (Hayes et al., 2004). Second, this study was also cross-sectional in design. Therefore, although associations between anticipated social outcomes and underage drinking were explored, no causal statements can be made. It cannot be ascertained whether less anticipated social sanctions leads to more adolescents drinking, whether adolescents' drinking leads to decreased social sanctions or whether anticipated social outcomes and underage drinking co-influence each other. Future longitudinal studies are needed to map the relationship between anticipated social outcomes and underage drinking. The ASO Scales used in this study were theoretically driven, consisted of items derived from qualitative research and demonstrated a sound factor structure across grade and gender. Before these scales can be incorporated in future interventions, however, it is important that the current findings be replicated across different samples with diverse ages, ethnicity, social-economic

status and family structure, to further validate the new ASO Scales. Finally, the study did rely on self-report measurements; however, substantial evidence indicates that adolescents provide reliable and valid reports of their substance use when they are assured of the confidentiality and anonymity of their responses (Dolcini, Adler, & Ginsberg, 1996), as was the case in this study.

Despite these limitations, the current study provides insight into how social influences may impact adolescents' underage drinking self-regulation. The Drink and Drunk ASO scales used in the current study demonstrated sound psychometric properties. Including these tools in future interventions could assist in targeting those adolescents at increased risk of drinking underage or experiencing alcohol-related harm. The current study also highlights the notable influence of parents and peers on adolescents' drinking self-regulation, and their potential role in intervention programs aimed at reducing underage drinking and its associated harms. Additionally, it emphasises the importance for intervention programs and research to not only consider external social influences on underage drinking but also how adolescents perceive these influences and how these conceptions subsequently motivates adolescents' underage drinking.

Chapter 4

The Influence of Underage Drinking Disengagement and Anticipated Social Outcomes for Being Drunk on Adolescents' Alcohol Use and Experience of Alcohol-related Harm

Abstract

A self-regulatory approach to adolescents' use of alcohol and experience of alcohol-related harm was adopted. The time-varying contribution of two social cognitive processes, moral disengagement and anticipated social outcomes, on underage drinkers' alcohol use and experience of alcohol-related harm was examined. The longitudinal sample of 347 (161 female) underage drinkers (age range: 12-16 years; 84% White) was assessed at three time points eight months apart. Across all time points high underage drinking disengagement and less anticipated social censure from mothers, fathers, and peers for being drunk were associated with an increase in alcohol use. Additionally, even in the presence of a strong positive relationship between alcohol use and alcohol-related harm, high underage drinking disengagement was associated with an increase in adolescents' experience of alcohol-related harm at all time points. Moreover, less anticipated social censure from mothers, fathers, and peers for being drunk was associated with an increase in adolescents' experience of alcohol-related harm at the first and last time points. These findings highlight that targeting the social outcomes adolescents anticipate for being drunk, as well adolescents' propensity to justify or excuse their drinking, has the potential to reduce adolescents' alcohol use and experience of alcohol-related harm.

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The Influence of Underage Drinking Disengagement and Anticipated Social Outcomes for Being Drunk on Adolescents' Alcohol Use and Experience of Alcohol-related Harm

Many countries have laws restricting the age when alcohol can be purchased and publicly consumed (World Health Organisation [WHO], 2007). However, by mid-adolescence many young people have started consuming alcohol and it is during this period of development that adolescents' alcohol use escalates (Gutman, Eccles, Peck, & Malanchuk, 2011; Henderson, Nass, Payne, Phelps, & Ryley, 2013). In Australia, 22% of 12-15 year olds and 68% of 16-17 year olds have consumed alcohol in the past 12 months (Australian Institute of Health and Welfare [AIHW], 2011). Furthermore, 17% of 12-17 year olds have consumed alcohol in the past week (White & Bariola, 2012). Of these weekly drinkers, 62% have experienced at least one alcohol-related harm, including physical illness, engagement in violent acts, and high-risk sexual activity (White & Bariola, 2012). Adolescent drinking can also lead to acute consequences such as disability or death (Jernigan, 2001). Indeed, 13% of all deaths among 14-17 year olds in Australia have been attributed to alcohol use (Chikritzhs, Pascal, & Jones, 2004).

Alcohol use only moderately relates to negative alcohol consequences, suggesting that adolescents' experience of alcohol-related harm is not solely explained by their level of alcohol consumption (Benton et al., 2006; Turrisi, Wiersma, & Hughes, 2000). How adolescents respond to alcohol and their environmental context may also increase their risk of experiencing alcohol-related harm (Little et al., 2013; Stice, Barrera, & Chassin, 1998). Therefore, identifying factors that not only relate to alcohol use but also independently relate to experience of alcohol-related harm has the potential to enhance prevention and intervention efforts (Little et al., 2013). Percy (2008) argues that focusing on factors that increase or impede adolescents' capacity to self-regulate their drinking and its negative consequences may be one way to reduce problematic alcohol use.

Adolescents' regulation of their alcohol use and its negative consequences does not

occur in isolation of a social context. Alcohol use predominately occurs in a social setting with parents and peers present (Henderson et al., 2013; White & Bariola, 2012). Additionally, parents and peers have been shown to be key socialising influences (Collins, Maccoby, Steinburg, Hetherington, & Bornstein, 2000), who play a central role in adolescents' initiation and subsequent use of alcohol (Bahr, Hoffman, & Yang, 2005; Donovan, 2004). Therefore, in considering regulatory influences on adolescents' alcohol use and experience of alcohol-related harm, social factors need to be considered. A reciprocal relationship between personal self-regulatory processes and the social influences of families and peers has been proposed in Bandura's (1986) social cognitive theory. However, there is limited research that concurrently examines these personal and social regulatory factors using longitudinal data. To address these issues, this study undertakes a self-regulatory approach towards underage drinkers' alcohol use and experience of alcohol-related harm. Consistent with the agentic perspective of social cognitive theory (Bandura, 1986), this study aims to investigate the contribution of a personal factor, the failure of self-sanctions through moral disengagement, and a social factor, the anticipation of social sanctions, on underage drinkers' use of alcohol and experience of alcohol-related harm using a longitudinal sample of mid-adolescents.

Bandura (1986) emphasises that conduct is regulated through the interplay of personal and social sanctions, which can have complimentary or opposing influences on behaviour. Typically, self-sanctions keep behaviour in line with personal standards (Bandura, 1986). According to social cognitive theory, these personal standards are constructed, in the course of socialisation, based on the proscription, modelling, and teaching of evaluative rules (Bandura, 1999). Once developed, behaviour is primarily monitored and evaluated in line with these standards. Individuals are motivated to perform behaviours which give them self-satisfaction and, to avoid self-censure, are motivated to refrain from behaviours which violate their standards (Bandura, Barbaranelli, Caprara, & Pastorelli, 1996; Bussey & Bandura, 1992). This self-regulatory process, however, is not automatic (Bandura, 1986). Adolescents

may still engage in prohibited behaviour if they deactivate negative self-sanctions through the process of moral disengagement (Bandura et al., 1996).

Moral disengagement has been positively associated with adolescents' propensity to engage in aggression, bullying, delinquency (Bandura et al., 1996; Gini, Pozzoli, & Hymel, 2014), steroid use in sport (Lucidi et al., 2008), violation of civic responsibilities (Caprara, Fida, Vecchione, Tramontano, & Barbaranelli, 2009), illicit substance use (Kiriakidis, 2008; Passini, 2012), underage drinking (Newton, Barrett, Swaffield, & Teesson, 2014; Newton, Havard, & Teesson, 2012; Quinn & Bussey, 2014b), and alcohol-related harm (Quinn & Bussey, 2014b). Bandura (2002) proposed eight mechanisms through which moral disengagement occurs. Six of these mechanisms, operating on the three separate loci, have been specifically applied to underage drinking (Quinn & Bussey, 2014b). At the behaviour loci, underage drinking is reconstrued by giving it a social or moral purpose (*moral justification*), relabelling it as "cool" or "just a way to have fun" (*euphemistic labelling*), or comparing it to something more grievous such as illicit drug use (*advantageous comparison*; Bussey & Quinn, 2014). At the agency loci, causal agency is obscured (Bandura, 2002; Bussey & Quinn, 2014) by displacing responsibility for underage drinking onto adult suppliers (*displacement of responsibility*) or by spreading the responsibility among a group of underage drinkers (*diffusion of responsibility*). Finally, at the outcome loci, the detrimental outcomes of underage drinking are disregarded, distorted, minimised, or disbelieved (*distorting or minimising the consequences*; Quinn & Bussey, 2014b).

Adolescents who more highly endorse these disengagement mechanisms have been shown to engage in underage drinking and to experience more harm as a consequence of their drinking (Quinn & Bussey, 2014). However, the majority of research assessing moral disengagement has utilised cross-sectional data, with the only longitudinal study on moral disengagement and alcohol use focusing on early adolescence (Newton et al., 2014). Additionally, no studies have examined moral disengagement in conjunction with anticipated

social outcomes. As stated earlier, behaviour regulation is not only internally motivated. People are also motivated by the social outcomes they anticipate receiving from others (Bandura, 1986). The anticipation of social praise and approval acts as an incentive to perform behaviour, while the anticipation of social disapproval or censure serves as a behaviour deterrent (Bandura, 1986). These anticipatory social outcomes can complement or contradict moral disengagement influences. Therefore, in conjunction with moral disengagement, the regulatory influence of anticipated social outcomes, on adolescents' alcohol use and experience of alcohol-related harm, requires consideration.

Similar to the development of personal standards, adolescents learn social outcomes for their behaviour by observing the actions of others and outcomes they experience (modelling), by personally experiencing consequences for conduct (enactive experience), and by being told the standards for conduct and what outcomes will ensue when particular actions are performed (direct tuition; Bandura, 1986). It is by synthesising the information gained from these different modes of influence that individuals then develop anticipatory social outcomes for behaviour. Once developed, these anticipatory social outcomes serve as another regulator and motivator of future performances (Bandura, 1986).

The social outcomes adolescents anticipate receiving from their mothers, fathers, and peers have found to be significantly associated with their use of alcohol (Quinn & Bussey, 2014a). Adolescents who anticipate social approval from their parents or peers for consuming alcohol have been shown to consume more alcohol underage, while those who anticipate social censure or disapproval consume less alcohol (Ford & Hill, 2012; Kristjansson, Sigfusdottir, James, Allegrante, & Helgason, 2010; Mrug & McCay, 2012; Quinn & Bussey, 2014a; Smith & Rosenthal, 1995). Stice et al. (1998) argued that anticipation of approval for drinking may also independently relate to alcohol-related harm because youth become less avoidant of risky situations or environments. Indeed, it has been found that that perceived social approval for drinking is positively related to college students'

experience of alcohol-related consequences over and above their use of alcohol (Abar, Abar, & Turrise, 2009; Hustad, Pearson, Neighbors, & Borsari, 2014; Larimer, Turner, Mallet & Geisner, 2004; Neighbors, Lee, Lewis, Fossos & Larimer, 2007). Additionally, anticipated social outcomes for being drunk have been found to cross-sectionally relate to adolescents' experience of alcohol-related harm (Quinn & Bussey, 2014a).

This study extended previous research by concurrently examining moral disengagement and anticipated social outcomes from mothers, fathers, and peers across three time points during mid-adolescence. Each of these social cognitive processes is examined as they relate, first to underage drinkers' alcohol consumption, then to underage drinkers' experience of alcohol-related harm. In a previous study (Quinn & Bussey, 2014b) it was shown that a moral disengagement scale, contextualised to underage drinking, more strongly relates to adolescents' use of alcohol and experience of alcohol-related harm than a general measure of moral disengagement measuring justifications and excuses for a wide range of transgressive behaviours. Therefore, in this study, moral disengagement was measured through the Underage Drinking Disengagement Scale (UDDS; Quinn & Bussey, 2014b). Additionally, since intoxication is commonly associated with experience of alcohol-related harm (Ministerial Counsel on Drug Strategy [MCDS], 2006), and since the present study was examining self-regulation of alcohol use to reduce these harms, this study focused on the social outcomes adolescents anticipate from mothers, fathers, and peers for being drunk and how these relate to underage drinkers' alcohol use.

Consistent with prior latent growth modelling and epidemiological research (AIHW, 2011; Duncan, Tildesley, Duncan, & Hops, 1995; White & Bariola, 2012), it was hypothesised that alcohol use and experience of alcohol-related harm would increase over time. It was further hypothesised that underage drinking disengagement and anticipated social outcomes from mothers, fathers, and peers for being drunk would predict changes in adolescents' trajectory of alcohol use. Specifically it was predicted that higher underage

drinking disengagement and less anticipated social censure would relate to greater alcohol use than would be expected given an individual's pattern of alcohol use over time. It was also hypothesized that a similar relationship would exist for underage drinkers' experience of alcohol-related harm: over and above an adolescents' use of alcohol, higher underage drinking disengagement and less anticipated social censure would relate to greater experience of alcohol-related harm than expected given an individual's patterns of alcohol-related harm over time.

Grade and gender influences on underage drinkers' trajectories of alcohol use and alcohol-related harm were included in all analyses. Adolescent males have consistently been found to consume more alcohol (AHIW, 2011; Reboussin, Song, Shrestha, & Lohman, Wolfson, 2006), and to increase the intensity of their alcohol use at a faster rate (Mares, Lichtwarck-Aschoff, Burk, Van der Vorst, & Engels, 2012; Jackson, 2013), compared to adolescent females. However, adolescent males and females have been shown to experience comparable levels of alcohol-related harm (Hibell et al., 2012; White & Bariola, 2012). Therefore, it was hypothesised that although adolescent males more than females would report higher levels of alcohol use at the initial time point, and a greater increase in their rate of alcohol use over time, no difference between adolescent males and females was expected for experience of alcohol-related harm.

As alcohol involvement increases with age (AHIW, 2011; Hibell et al., 2012; White & Bariola, 2012) it was anticipated that at the initial time point the older cohort of students would report higher levels of alcohol use and greater experience of alcohol-related harm than the younger cohort. However, despite initial differences being greater for older students, there is evidence that younger students experience a steeper increase in problem behaviour over time (Duncan, Duncan, & Strycker, 2000). Therefore, it was expected that the rate of change over time in alcohol use and alcohol-related harm experienced would be greater for younger than for older students.

Method

Participants and Sampling

Data were collected across three time points with eight months between each time point. A total of 347 (161 female) students in grades 8 ($n = 103$, $M_{\text{age}} = 13.54$ years, age range: 12-14 years) and 10 ($n = 244$, $M_{\text{age}} = 15.44$, age range: 14-16 years) constituted the final drinker sub-sample. Of the participants 84% were White, 7% were Asian, 4% Middle Eastern and 5% were from other ethnic groups.

The drinker sample was derived from an original sample of 688 (356 female) students in grades 8 ($n = 314$, $M_{\text{age}} = 13.51$ years, age range: 12-14 years) and 10 ($n = 374$, $M_{\text{age}} = 15.43$, age range: 14-16 years) from 10 metropolitan and regional non-governmental schools. Of the participants 81% were White, 8% were Asian, 6% Middle Eastern and 5% were other. Adolescents were included in the longitudinal drinker sample if they had participated in at least two of the three waves of data collection (613 (89%) students)⁹ and if they indicated that they had consumed alcohol at least once in their lifetime. Based on the responses to the question: "About how old were you when you had your first full standard drink of alcohol?" the mean drinking onset was 14 years old ($SD = 1.46$ years). Informed written consent was obtained from parents at the beginning of the study and students provided written assent at each time point.

Attrition

Adolescents included in the longitudinal sample were compared to those who did not complete the questionnaire past time one (T1) on demographic and lifetime alcohol measurements. The only difference between the groups was that individuals who did not

⁹ At baseline (T1), 651 students completed the questionnaire (95% of the total participating sample) (5% of students were absent on the day of testing due to illness or school excursion and therefore did not complete the survey at T1); 588 (86%) completed the questionnaire at time two (T2) and 466 (70%) completed the questionnaire at time three (T3). The decline in sample size at T2 and T3 was predominantly due to students changing schools, students being absent from school on the day of testing due to illness or school excursion, and two schools being unable to participate at T3 due to end of year exam commitments.

complete past T1 were more likely to be in Grade 10 ($\chi^2 = 5.19, p = .02$; 66% compared to 51%). Comparisons between the drinker sub-sample and non-drinkers on demographic information indicated that drinkers were more likely to be male ($\chi^2 = 14.86, p < .001$; 57% compared to 41%) and to be in Grade 10 at T1 ($\chi^2 = 85.27, p < .001$; 68% compared to 30%).

Measures

Alcohol Use. Alcohol frequency, quantity, and frequency of heavy drinking were assessed using items taken from the SHAHRP ‘Patterns of Alcohol Use’ measure (McBride, Farrington, Muleners, & Midford, 2006). Respondents reported for the past three months how often they had consumed an alcoholic drink (0 = *never* to 7 = *everyday*), how many alcoholic drinks they usually had on a day that they drank (0 = *haven't drunk* to 7 = *13 or more drinks*) and how often in the past three months they had consumed more than 4 standard drinks in a day (0 = *never* to 7 = *everyday*). Each item was standardised using the grand mean and composite standard deviation across the three measurement time points. The frequency, quantity, and heavy drink items were then summed to create a composite alcohol use score for each time point (Vaughan, Corbin & Fromme, 2009). Internal reliability for the three-item composites was high (T1 = .87; T2 = .89; T3 = .89)

Alcohol-related harm. Experience of alcohol-related harm was measured using the Alcohol-related Harm index from the CLIMATE School survey (Newton, Vogel, Teesson, & Andrews, 2009), which is an adaption of the SHARHP Alcohol-related Harm index (McBride, Farrington, Midford, Meuleners, & Phillips, 2006). Only 10 of the 12 items from the CLIMATE Survey were used in this study. Two items related to sexual activity after consuming alcohol and were removed due to ethical constraints. Respondents indicated on a 6-point scale (1 = *never* to 6 = *12 or more times*) how often in the past three months they experienced harm as a consequence of their own drinking. The type of harm measured included items such as “how many times did you have a hangover after drinking?” and “how many times did you drink more than you planned?”. The Alcohol-related Harm index had

good internal consistency at all three time points (T1: $\alpha = .86$; T2: $\alpha = .89$; T3: $\alpha = .90$), which is comparable to the internal consistency found in the SHAHRP study ($\alpha = .90$).

Underage drinking disengagement. The UDDS (Quinn & Bussey, 2014b) is an 18-item scale measuring six moral disengagement mechanisms, with three items per mechanism. Items included “drinking alcohol is okay because it’s not as bad as using illegal drugs” and “if everyone at a party is drinking it is unfair to blame one kid for drinking”. Students rated each item on a 5-point scale from 1 = *strongly disagree* to 5 = *strongly agree*. Higher UDDS scores indicate greater disengagement to underage drinking. The underage drinking disengagement scale had good internal consistency (T1: $\alpha = .93$; T2: $\alpha = .93$; T3: $\alpha = .95$).

Anticipated social outcomes (ASO) for being drunk. The Drunk ASO scale (Quinn & Bussey, 2014a) consists of three 3-item sub-scales measuring the evaluative reactions adolescents anticipate receiving from their mothers, fathers, and peers, for having drunk alcohol to the point of drunkenness. Students were presented with the stem “You are drinking alcohol and it is obvious you are drunk. Your (mother) would...” three times responding to three different items measured on a 4-point scale (i.e., 1 = *be totally disappointed with you for being drunk* and 4 = *be totally pleased with you for being drunk*; 1 = *think it is totally not ok that you are drunk* and 4 = *think it is totally ok that you are drunk*; 1 = *totally care that you are drunk alcohol* and 4 = *totally not care that you are drunk*). Students responded to identical stems and item responses in relation to fathers and friends.¹⁰

Missing Data

Percentage of missing data at the variable level, for those students who completed data

¹⁰ To confirm the latent ASO scale with three sub-scales found in previous studies (Quinn & Bussey, 2014a), a confirmatory factor analysis was conducted at each time point. The model obtained satisfactory fit at all three time points (T1: $\chi^2(24, N = 347) = 37.06, p = .043, CFI = .99, TLI = .99, RMSEA = .04$; T2: $\chi^2(24, N = 347) = 61.07, p < .001, CFI = .98, TLI = .97, RMSEA = .07$; T3: $\chi^2(24, N = 347) = 60.63, p < .001, CFI = .98, TLI = .97, RMSEA = .07$). The drunk ASO sub-scales had good internal consistency at each of the three time points (Total: T1 = .87; T2 = .88; T3 = .90; Mother: T1 = .88; T2 = .90; T3 = .94; Father: T1 = .92; T2 = .94; T3 = .96; Peers: T1 = .88; T2 = .90; T3 = .89).

at T1, ranged from 0.3 to 4.7%. Missing data for students completing data at T2 ranged from 0.6 to 3.6% and for students completing data at T3, missing data ranged from 0.7 to 4.1%. Missing data across the three waves, including students who did not complete data at a time point, ranged from 5.8 to 25.6%. Full information maximum likelihood (FIML) estimation was used as it is considered an optimal approach for handling missing data for latent growth modelling (Cheung, 2007). This method uses all available information for each person and has been shown to produce unbiased parameter estimates and standard errors for missing at random data (Acock, 2005; Enders & Bandalos, 2001).

Procedure

Testing occurred in classrooms or halls in groups of approximately 20 to 100 adolescents. Standardised instructions were delivered by trained research assistants who then remained present during testing to answer individual student questions. Participants were assured verbally and in writing of the anonymity of their responses. To ensure confidentiality, adolescents were asked not to discuss their answers with peers. Additionally, although teachers were present to supervise the survey administration, they were asked to remain seated at their desk and not circulate the room or look at student responses. The survey took approximately 45 minutes to complete. A unique identification code, adapted from the SHAHRP study (McBride et al., 2006), was incorporated to link data across time without identifying an individual. The code included four information components: the first letter of the student's mother's first name, student's day of birth, last two letters of student's first name and last two letters of students' last name. All participants entered a draw to win one of forty cinema tickets.

Results

Statistical Analysis

Means and standard deviations were computed for the key variables (see Table 1). A series of latent curve analyses were conducted in AMOS 21 (Arbuckle, 2012) to examine the

change in alcohol use and alcohol-related harm over time and predictors and covariates of this change. Latent curve analysis was utilised because it is a flexible tool which considers intra-individual changes in behaviour over time, while also considering the inter-individual differences in these changes (McArdle, 1988; Meredith & Tisak, 1990). The latent curve analysis, also referred to as latent growth modelling or LGM, was conducted in two stages (Duncan & Duncan, 2004; Li, Duncan, Mcauley, Harmer, & Smolkowski, 2000).

Table 1

Means (Standard Deviations) for key variables within the study

	Time 1	Time 2	Time 3
Frequency ^a	1.81 (1.22)	2.22 (1.42)	2.49 (1.41)
Quantity ^a	2.35 (1.65)	2.90 (1.72)	3.36 (1.80)
Frequency Binge ^a	0.81 (1.18)	1.30 (1.57)	1.68 (1.71)
Alcohol Harm ^b	14.12 (5.67)	15.56 (7.29)	17.09 (7.87)
UDDS	47.39 (12.35)	48.25 (12.64)	49.74 (12.91)
ASO - Mother	4.03 (1.41)	4.37 (1.77)	4.95 (1.76)
ASO – Father	4.41 (1.61)	4.89 (1.90)	5.48 (2.06)
ASO - Peers	6.90 (1.99)	7.42 (2.23)	7.86 (2.19)

Note. ^aDue to positive skew these variables were log transformed prior to standardisation and creation of composite score. ^bLog10 transformed due to initial skewness.

The first stage examined group and individual differences in alcohol use and alcohol-related harm over time using two unconditional growth models. For alcohol use, the linear growth model was estimated for T1, T2, and T3 alcohol use scores (Figure 1). Linear growth was reflected by fixing the paths from the latent linear factor to alcohol use variables as 0, 1, 2. Alcohol use at time 1 had the initial value (0), since it was assumed that the growth process would continually develop from this first time point. A latent intercept variable was included in the model to examine the average alcohol use of each participant over the three time points.

Therefore, the paths from the latent intercept variable to the alcohol use variables were of equal weight (1). The mean intercept and linear factors were examined to determine the average initial alcohol use and the average rate of change in alcohol use over time. The variance of the intercept and linear factor were examined to assess individual differences in initial alcohol use and the rate of change in alcohol use over time. The linear growth model for alcohol-related harm was the same as that described above for alcohol use.

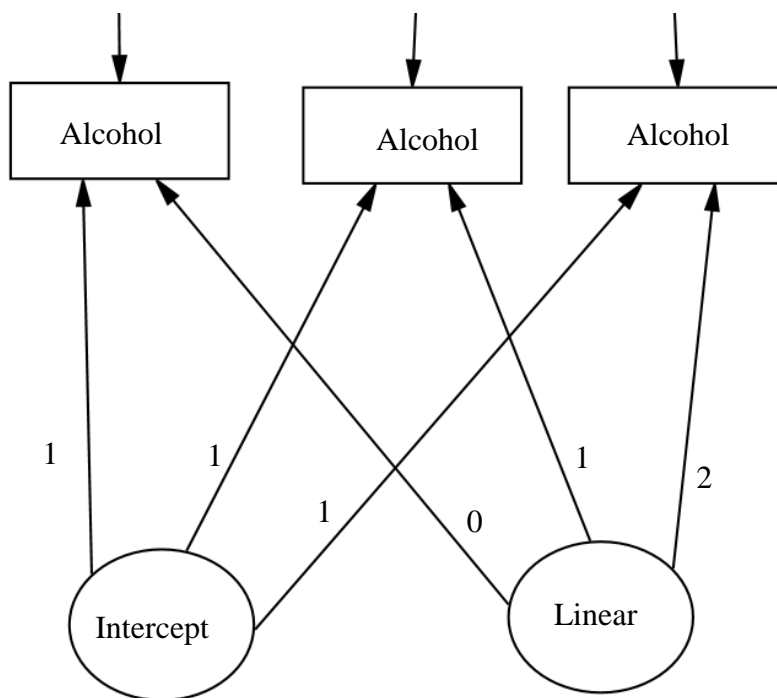


Figure 1. The unconditional growth model for alcohol use / alcohol-related harm.

The second stage of analysis examined conditional growth models, which incorporated correlates and predictors that may account for individual variation in initial scores and rate of change over time. For alcohol use, the intercept and linear slope of alcohol use were first regressed on gender and grade to test whether the individual differences in initial alcohol use and rate of change over time were a function of gender and grade. Additionally, the time-varying covariates UDDS and ASO were incorporated in the model (see Figure 2). Alcohol use was regressed on the UDDS and the Drunk ASO Scale, within each time point, to determine the unique effects of underage drinking disengagement and anticipated social outcomes for being drunk on the time-specific measurements of alcohol use

over and above the effects of the underlying trajectory of alcohol use (Li et al., 2000). For alcohol-related harm, the intercept and linear slope of alcohol-related harm were also regressed on gender and grade, while alcohol use, the UDDS, and ASO Drunk Scale scores were included as time-varying covariates (see Figure 3).

A non-significant χ^2 statistic is indicative of goodness-of-fit. However, the χ^2 statistic is often sensitive to sample size and the number of variables in the model (Hox & Bechger, 2001; Kaplan, 2000). Hence, in addition to examining the χ^2 statistic, goodness-of-fit was determined through an examination of the Comparative Fit Index (CFI), Tucker Lewis Index (TLI), and Root Mean Square Error of Approximation (RMSEA). Hu and Bentler (1999) suggest that good model fit is indicated by CFI and TLI values of .95 or higher and an RMSEA value of .06 or lower. However, Browne and Cudeck (1993) and Vandenberg and Lance (2000), recommend CFI and TLI values of .90 and a RMSEA value of .08 as the criterion for reasonable model fit. The Hu and Bentler (1999) criteria were used as higher confidence limits and Vandenberg and Lance's (2000) cut-offs were used as acceptable lower limits of the model fit.

Preliminary analyses, using the linear mixed model procedure in SPSS, were conducted to examine the effects of the data being nested (i.e., students are grouped within different schools) and to examine the possibility of a lack of independence of responses arising from students belonging to the same school. Clustering of responses within schools was examined by fitting a random intercept model for each variable and entering school as a random factor. The variance of the random school factor did not significantly differ from zero for any of the analyses. Therefore, clustering within schools was not accounted for in subsequent analyses.

Unconditional Growth Model

Alcohol Use. The latent growth model presented in Figure 1 was estimated and found to fit the data well, $\chi^2(1, N = 347) = 1.16, p = .281, CFI = 1.00, TLI = 1.00, RMSEA = .02$.

The means of the latent factors showed a significant intercept of -0.83 ($z = 5.81, p < .001$) and a significant increasing linear slope of 0.87 units per 8 months ($z = 11.16, p < .001$), indicating that the mean rate of alcohol-related harm increased from -0.83 to 0.91 over the period of the study. Significant variance for the intercept and linear slope revealed that respondents differed in their initial alcohol use (critical ratio = 8.51, $p < .001$), and in their change in alcohol use levels over time (critical ratio = 4.12, $p < .001$). The linear and intercept latent variables were significantly negatively correlated ($r = -.47, p < .001$). Adolescents with higher initial alcohol use showed smaller increases in alcohol use over time.

Alcohol-related harm. The latent growth model presented in Figure 1 was estimated and found to fit the data well, $\chi^2(2, N = 347) = 1.46, p = .481, CFI = 1.00, TLI = 1.01, RMSEA < .001$. The means of the latent factors showed a significant intercept of 1.12 ($z = 143.85, p < .001$) and a significant increasing linear slope of 0.04 units per 8 months ($z = 7.60, p < .001$), revealing that the mean rate of alcohol-related harm increased from 1.12 to 1.20 over the period of the study. Additionally, there was significant variability in respondents initial levels of alcohol-related harm (critical ratio = 9.45, $p < .001$) and in their change in alcohol-related harm over time (critical ratio = 3.88, $p < .001$).

Conditional Growth Models

Alcohol use. After the unconditional model was tested, gender and grade were added as predictors of the intercept and slope and the UDDS and Drunk ASO Scale were next added as time-varying covariates (see Figure 2). The UDDS was included as an observed variable at each of the three time points. The Drunk ASO Scale was included at each time point as a latent variable made up three factors, namely the Drunk ASO sub-scales for mother, father, and peers. The errors of these sub-scales were allowed to correlate across time. Directional paths from the UDDS/Drunk ASO Scale to alcohol use were added within each time point. Correlations among the UDDS and the Drunk ASO Scale were included across time. The model achieved adequate model fit, $\chi^2(96, N = 347) = 198.83, p < .001, CFI = .95, TLI = .92,$

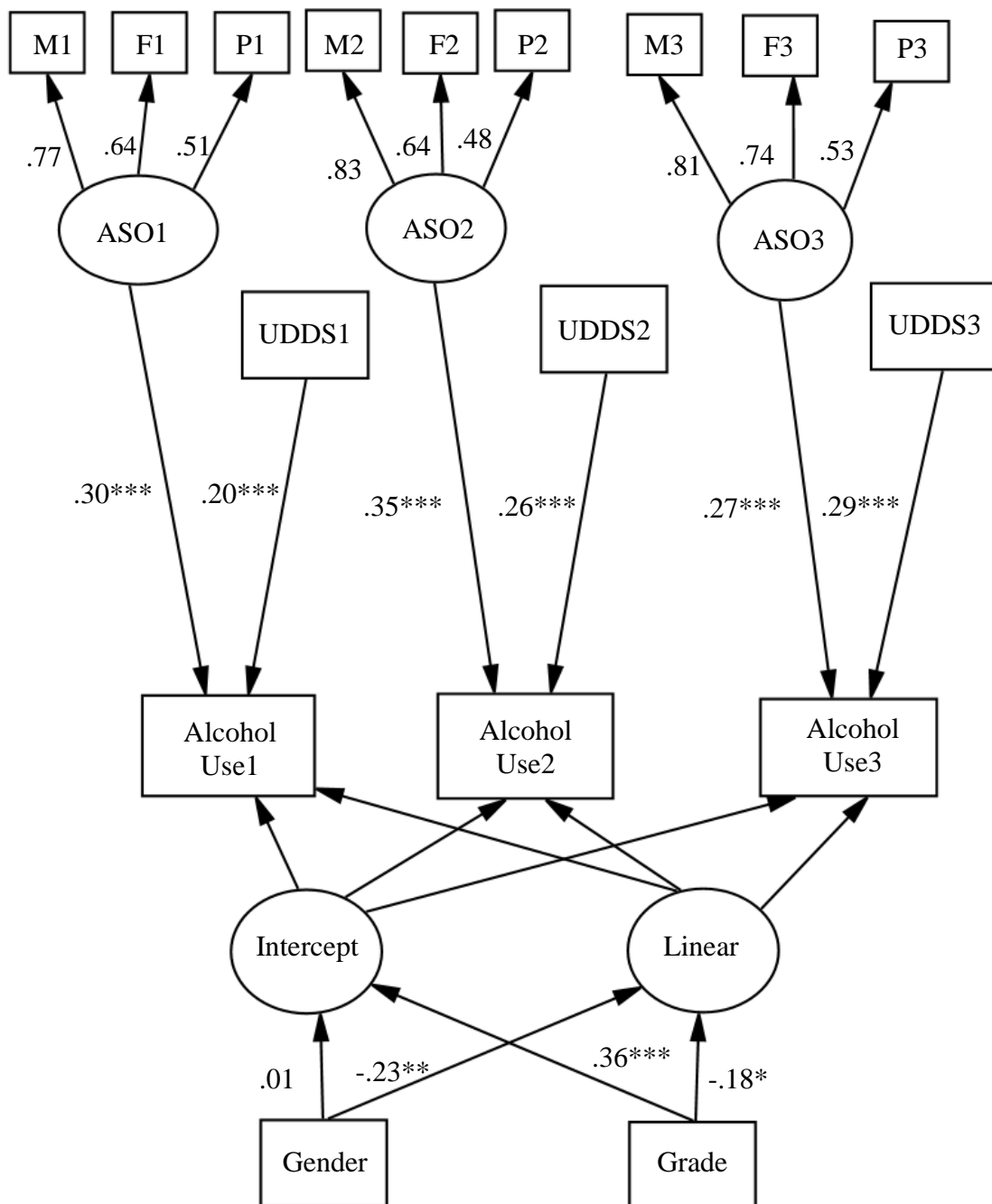


Figure 2. Conditional growth model for alcohol use, with time-varying covariates underage drinking disengagement and anticipated social outcomes for being drunk.

Standardised coefficients are presented: ASO = Anticipated Social Outcomes (M = Mother, F = Father, P = Peers); UDDS = Underage Drinking Disengagement Scale.
 * $p < .05$, ** $p < .01$, *** $p < .001$.

RMSEA = .06. There were significant differences in the intercept by grade. Grade 10 students reported higher T1 alcohol use scores than did Grade 8 students ($b = 1.52, SE = .26, p < .001$). Grade 10 students also showed smaller increases in alcohol use scores over time relative to Grade 8 students ($b = -.32, SE = .16, p = .044$). There was no significant difference between males and females on the intercept ($b = .04, SE = .24, p = .854$). However, males showed greater increases in alcohol use over time relative to females ($b = -.38, SE = .14, p = .008$). There was a significant positive relationship between the UDSS and alcohol use at all three time points (T1: $z = 3.89, p < .001$; T2: $z = 7.12, p < .001$; T3: $z = 5.77, p < .001$). Higher UDSS scores were associated with higher levels of alcohol use. There was also a significant positive relationship between the Drunk ASO Scale and alcohol use at all three time points (T1: $z = 4.37, p < .001$; T2: $z = 5.44, p < .001$; T3: $z = 4.24, p < .001$), with more positive anticipated social outcomes relating to higher levels of alcohol use.

Alcohol-related harm. After the unconditional model was tested, gender and grade were added as predictors of the intercept and slope. Alcohol use, the UDSS, and Drunk ASO Scale were added as time-varying covariates (see Figure 3). The model achieved adequate model fit, $\chi^2(127, N = 347) = 282.22, p < .001, CFI = .95, TLI = .91, RMSEA = .06$. There were no significant difference between Grade 8 and Grade 10 students on the intercept ($b = .001, SE = .01, p = .918$). However, Grade 10 students did show smaller increases in alcohol-related harm scores over time relative to Grade 8 students ($b = -.02, SE = .01, p = .033$). As expected, males and females did not differ on the intercept ($b = .02, SE = .01, p = .061$) or in the rate of change in alcohol-related harm scores over time ($b = .001, SE = .01, p = .908$).

Alcohol use was significantly and strongly associated with experience of alcohol-related harm at all three time points (T1: $z = 12.66, p < .001$; T2: $z = 18.38, p < .001$; T3: $z = 13.51, p < .001$), with higher alcohol use scores relating to higher experience of alcohol-related harm. There was a significant positive relationship between the UDSS and alcohol-related harm at all three time points (T1: $z = 2.51, p = .012$; T2: $z = 3.42, p < .001$; T3: $z = 2.55,$

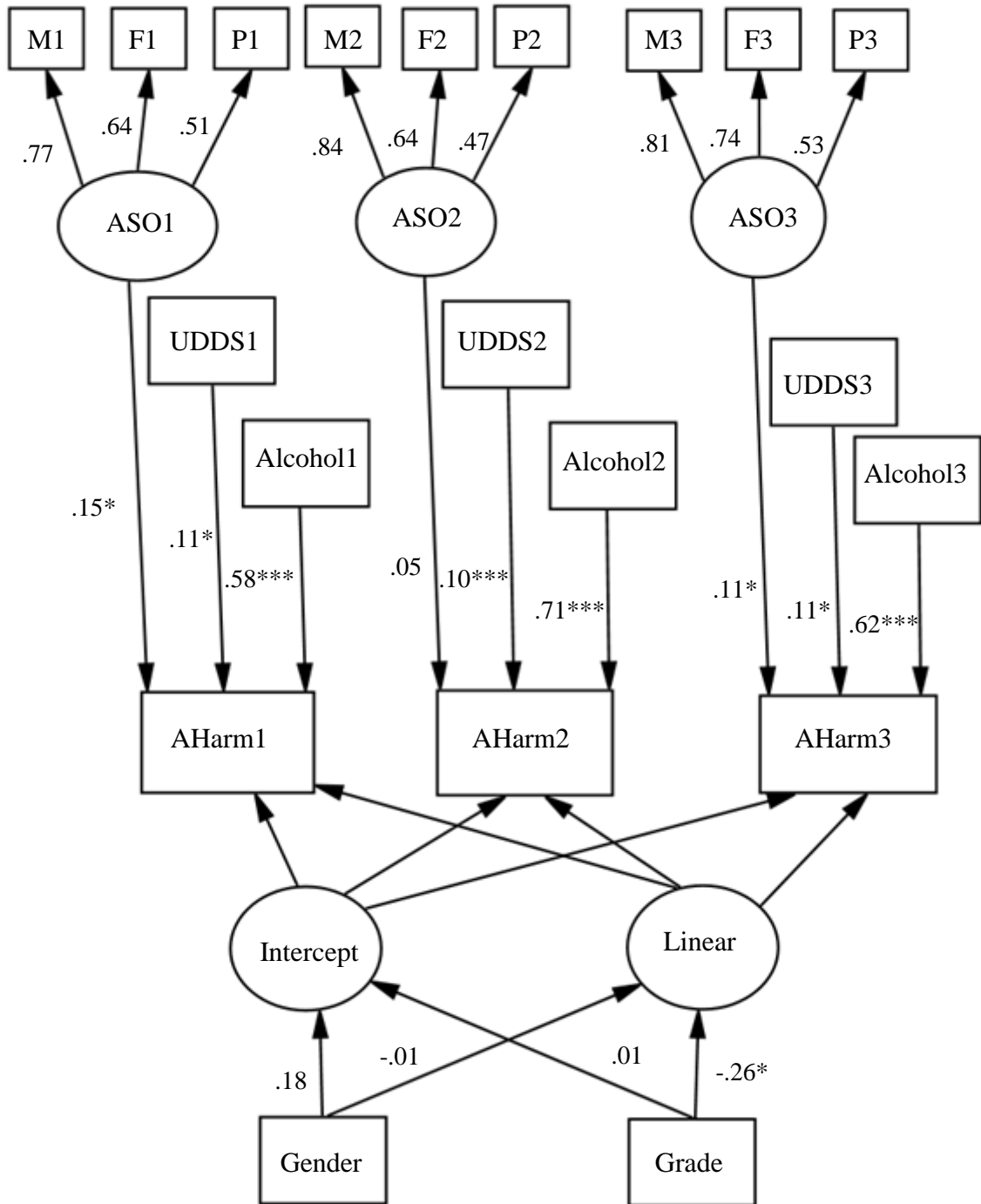


Figure 3. Conditional growth model for alcohol-related harm, with time-varying covariates underage drinking disengagement and anticipated social outcomes for being drunk.

Standardised coefficients are presented: ASO = Anticipated Social Outcomes (M = Mother, F = Father, P = Peers); UDDS = Underage Drinking Disengagement Scale; Alcohol = Alcohol Use; AHarm = Alcohol-related Harm. * $p < .05$, ** $p < .01$, *** $p < .001$.

$p = .011$). Higher UDDS scores were associated with higher levels of alcohol-related harm. There was also a significant positive relationship between the Drunk ASO Scale and alcohol harm at T1 and T2 (T1: $z = 2.50$, $p = .012$; T2: $z = 1.06$, $p = .289$; T3: $z = 2.01$, $p = .045$), with more positive anticipated social outcomes relating to higher experience of alcohol-related harm.

Discussion

This was the first study to concurrently examine both personal and social self-regulatory influences on adolescents' alcohol use and experience of alcohol-related harm using a longitudinal sample of mid-adolescents. Consistent with previous epidemiological work and latent growth analyses (AIHW, 2011; Duncan et al., 1995; White & Bariola, 2012), the unconditional growth models showed that the underage drinker sample as a whole reported increasing trajectories in alcohol use and experience of alcohol-related harm over the three time points, with significant individual variability in the first time point and in the rate of change over time. The inclusion of social cognitive processes as time-varying covariates revealed that, as hypothesised, at any given time point, underage drinking disengagement and anticipated social outcomes from mothers, fathers, and peers for being drunk were positively associated with an increase in alcohol use.

Consistent with prior research (Newton et al., 2012; Newton et al., 2014; Quinn & Bussey, 2014b) adolescents who strongly endorsed disengagement strategies at any specific time period were at an increased risk of escalating their alcohol use. These findings reinforce the need to examine how adolescents self-regulate their alcohol use and factors that may lead them to disengage self-regulatory standards. Many interventions which only educate adolescents on the laws and harms of alcohol use have had minimal if any effectiveness (National Institute on Alcohol Abuse and Alcoholism [NIAAA], 2004/2005). The strong relationship between underage drinking disengagement and alcohol use suggests that beyond educating adolescents on the laws and harms of alcohol use specific targeting of adolescents'

justifications and excuses for underage drinking, and fostering personal responsibility for their use of alcohol, may enhance the efficacy of extant intervention programs aimed at reducing adolescents' alcohol use.

In support of prior research (Ford & Hill, 2012; Kristjansson et al., 2010; Mrug & McCay, 2012; Quinn & Bussey, 2014a), anticipation of less social censure for being drunk was also associated with greater use of alcohol across time. Therefore, in addition to targeting adolescents' underage drinking disengagement, an additional way to improve the efficacy of intervention programs may be to focus on adolescents' perceptions of the social outcomes they anticipate for being drunk. Already there is evidence that combined parent-adolescent intervention programs are more effective at reducing heavy adolescent drinking than programs targeting parents or adolescents alone (Koning et al., 2009). In line with social cognitive theory (Bandura, 1986) and the current findings, the efficacy of existing parent-adolescent interventions may be improved through two avenues. First, by specifically targeting the modelling, enactive experience, and direct tuition modes through which adolescents learn possible outcomes for using alcohol and being drunk. Second, by concurrently focusing on how adolescents synthesise, prioritise, and interpret the information they receive from these different modes of influence to form anticipatory social outcomes for being drunk.

Beyond examining the influence of underage drinking disengagement and anticipated social outcomes on alcohol use, the current study also examined how these self-regulatory processes relate to underage drinkers' experience of alcohol-related harm. Even in the presence of a strong positive relationship between alcohol use and alcohol-related harm, high underage drinking disengagement was associated with an increase in experience of alcohol-related harm at all time points and less anticipated social censure for being drunk was associated with an increase in experience of alcohol-related harm at the first and last time points. These findings suggest that targeting adolescents' justifications and excuses for

underage drinking, as well as the social outcomes they anticipate for being drunk, not only reduces the amount of alcohol adolescents consume, but also independently reduces the alcohol-related harm they experience. Stice et al. (1998) argued that anticipation of approval for drinking may independently relate to alcohol-related harm because youth become less avoidant of risky situations or environments. With increasing intervention programs aimed at teaching adolescents effective alcohol harm minimisation techniques (Jones et al., 2007; Teesson, Newton, & Barrett, 2012), an area for future research is to investigate whether adolescents who justify or excuse their underage drinking, or who anticipate positive outcomes for being drunk, actually employ the harm minimisation techniques they have been taught.

Consistent with epidemiological research (AHIW, 2011; Hibell et al., 2012; White & Bariola, 2012), at the initial time point, older students reported greater alcohol use than did younger students. Additionally, as hypothesised, the rate of change in alcohol use increased at a faster rate for younger than for older students. It is likely that because younger adolescents initially had lower levels of alcohol use they had greater scope to increase their uptake of alcohol. Unexpectedly, there was no significant difference between younger and older students in alcohol-related harm at the initial time point, yet younger students increased their rate of alcohol-related harm over time at a faster rate than did older students. These findings support prior research suggesting that younger adolescents' alcohol use may be less normative and more deviant than that of older adolescents, placing them at a greater risk of experiencing harm over time (Li, Duncan, Duncan & Hops, 2001).

Adolescent males and females did not differ on initial alcohol use, initial levels of alcohol-related harm, or changes in experience of alcohol-related harm over time. These findings are consistent with evidence of a merging gender gap in adolescents' experiences with alcohol (Amaro, Blake, Schwartz, & Flinchbaugh, 2001; Hibell et al., 2012). However, adolescent males' level of alcohol use did increase at a faster rate than that reported by

adolescent females, which supports previous findings that adolescent males often escalate into heavy drinking more than adolescent females do (Li et al., 2001; Mares et al., 2012; Jackson, 2013). A possible reason why adolescent males may escalate their drinking more than adolescent females, while still experiencing comparable levels of alcohol-related harm, is that females are more easily affected by alcohol than males due to differences in size and metabolism and therefore, may consume less alcohol but still experience comparable negative consequences (Eklund & Klinteberg, 2009; Wilsnack, Volgeltanz, Wilsnack, Harris, 2000).

The results from the current study should be examined in the context of several limitations. Although the study was longitudinal the examination of time-varying associations within each time point does not enable the determination of causality. Additionally, adolescents were asked to retrospectively report on the amount of alcohol they had consumed and alcohol-related harm they had experienced in the previous three-months, which could potentially result in self-presentation bias and/or recall bias. However, despite this limitation, self-report data is a method extensively used and widely accepted as valid, especially when administered in conditions of confidentiality, as was done in the current study (Babor, Stephens, & Marlatt, 1987; Clark & Winters, 2002; Dolcini, Adler, & Ginsberg, 1996).

Students absent on the day of testing due to illness, changing schools, or a school being unable to participate due to exams, did result in sample attrition. Although not optimal, such missing data could be considered missing at random if not completely at random (Acock, 2005), and the advantage of LGM was that FIML estimation enabled a maximum number of students to be included in the final sample (Enders & Bandalos, 2001). Additionally, attrition analyses demonstrated that the final sample was generally representative of the original sample at baseline. Another limitation to be considered is that the current study focused on underage drinkers within a school-based population. Therefore, the findings do not necessarily generalise to adolescents experiencing more clinically significant alcohol-related problems.

In summary, the current study extended prior research on underage drinking by focusing on adolescents' agentic capacity to self-regulate their drinking through the consideration of social and personal processes that may impede this self-regulation. It is the first study to investigate the independent, across time, contribution of social and personal self-regulatory processes, not only on adolescents' use of alcohol, but also their experience of alcohol-related harm. Findings from this study highlight that specific targeting of adolescents' excuses and justifications for underage drinking, as well as the social outcomes they anticipate for being drunk, have the potential to reduce adolescents' escalation of alcohol use and their experience of alcohol-related harm.

Chapter 5
General Discussion

Introduction to General Discussion

Personal and social factors that may impede or motivate adolescents' self-regulation of underage drinking and experience of alcohol-related harm were examined in this thesis through three separate papers. First, moral disengagement was examined in the context of underage drinking. Next, anticipated social outcomes from mothers, fathers, and peers for drinking alcohol and being drunk were investigated. Finally, anticipated social outcomes and underage drinking disengagement were concurrently examined in relation to adolescents' alcohol use and experience of alcohol-related harm across time. In this general discussion, a brief overview of the findings from this thesis will first be presented. Then a discussion of the implications of these findings for theory and intervention will follow. Next, strengths and limitations will be reviewed. Finally, a discussion of areas for future research will be presented.

Overview of Findings

The value of a moral disengagement scale contextualised to underage drinking was confirmed in Chapter 2. The development of the Underage Drinking Disengagement Scale (UDDS) extended extant research on moral disengagement and underage drinking (Newton, Barrett, Swaffield, & Teesson, 2014; Newton, Havard, & Teesson, 2012), providing a comprehensive measure of moral disengagement in the context of underage drinking. The UDDS more strongly related to adolescents' underage drinking and experience of alcohol-related harm than did a broad-based moral disengagement scale covering a range of transgressive behaviours. These findings affirm the need for moral disengagement scales to be contextualised to the specific domain of transgressive behaviour under investigation (Barchia & Bussey, 2011; Boardley & Kavussanu, 2009; Caprara, Fida, Vecchione, Tramontano, & Barbaranelli, 2009).

The importance of considering how adolescents' self-regulate their drinking was also demonstrated in Chapter 2 through the application of Bandura's (1986) self-regulatory model

to the context of underage drinking. The more adolescents judged underage drinking negatively, the more they experienced anticipatory guilt at the prospect of drinking and the more likely they were to drink underage and to experience alcohol-related harm if they did drink. This relationship between personal standards, anticipatory guilt, and underage drinking varied at different levels of underage drinking disengagement. The more adolescents endorsed underage drinking disengagement strategies, the less guilt they anticipated at the prospect of drinking and the more they drank underage and experienced alcohol-related harm if they did drink. These findings highlight the need to consider factors that motivate and impede adolescents' self-regulation of their underage drinking and experience of alcohol-related harm.

The key influence of mothers and peers on adolescents' engagement in underage drinking and experience of alcohol-related harm was highlighted in Chapter 3. Moving beyond the personal factors of self-sanctions and their deactivation through moral disengagement, in this chapter, the social outcomes adolescents anticipate for drinking alcohol and being drunk were specifically examined. Exploratory and confirmatory factor analyses verified a three factor structure for each of the anticipatory social outcome scales, representing anticipatory social outcomes from mothers, fathers, and peers for drinking alcohol and being drunk. As expected, although anticipatory social outcomes for drinking alcohol more strongly related to engagement in underage drinking, for underage drinkers it was anticipatory social outcomes for being drunk which most strongly related to their experience of alcohol-related harm. Moreover, consistent with previous research (Allen, Donohue, Griffin, Ryan, & Turner, 2003; Ford & Hill, 2012; Mrug & McCay, 2013; Nash, McQueen, & Bray, 2005; Yu, 1998), the social outcomes that adolescents anticipated from peers for drinking alcohol were more strongly related to their engagement in underage drinking than the social outcomes anticipated from parents. It was the social outcomes adolescents anticipated receiving from mothers, however, which most strongly related to

alcohol-related harm. Such findings reinforce the need to consider the social outcomes adolescents anticipate for different alcohol-related behaviours and from different social figures, as well as highlighting the prominent role of mothers and peers on adolescents' engagement in underage drinking and experience of alcohol-related harm.

Understudied grade and gender differences in anticipatory social outcomes were also examined in Chapter 3. Consistent with previous research (Mrug & McCay, 2013), all adolescents anticipated less social censure from their peers than their parents. However, adolescent males anticipated less social censure for drinking alcohol and being drunk from peers and fathers than did adolescent females. Moreover, older students anticipated less social censure for drinking alcohol than did younger students. Such findings reinforce the need to consider demographic differences for key processes related to adolescents' alcohol use and alcohol-related harm and the reasons behind these differences. Despite mean differences, however, the relationships between anticipated social outcomes and underage drinking and experience of alcohol-related harm did not vary by grade or gender, suggesting that for adolescent males and females and for older and younger students anticipated social outcomes uniformly relate to adolescents' engagement in underage drinking and experience of alcohol-related harm.

The independent, concurrent, across time contribution of personal and social factors to adolescents' alcohol use and experience of alcohol-related harm was shown in Chapter 4. Consistent with previous epidemiological research (AIHW, 2011; White & Bariola, 2012), in Chapter 4, it was found that adolescents alcohol use, and experience of alcohol-related harm increased over time. As expected underage drinking disengagement and anticipated social outcome for being drunk both independently related to drinkers' alcohol use and experience of alcohol-related harm across time. Such findings highlight the need to consider the impact of both personal and social factors on adolescents' regulation of their alcohol use and experience of alcohol-related harm.

Theoretical Implications

This thesis extends the diverse applications of social cognitive theory to adolescent alcohol use by examining the impact of personal and social regulatory factors on adolescents' engagement in underage drinking, alcohol use, and experience of alcohol related harm. Preliminary support for the application of Bandura's (1986) self-regulatory model to adolescents' underage drinking and experience of alcohol related harm was provided in Chapter 2. As stated earlier, adolescents who judged underage drinking negatively, anticipated more guilt at the prospect of drinking underage, and engaged in less underage drinking and experienced less alcohol-related harm. These findings support Bandura's (1986) assertion that affective self-evaluations, such as anticipatory guilt, self-direct and self-motivate adolescents' behaviour in line with their personal judgements or standards. In accord with Bandura's (1986) social cognitive theory, this self-regulatory process was not automatic. It varied at different levels of underage drinking disengagement. Therefore, in considering how adolescents' self-regulate their engagement in underage drinking and experience of alcohol-related harm, this research supported the need to not only examine standards for behaviour and self-evaluative reactions, but also the disengagement mechanisms by which these standards and evaluations can be deactivated. In considering these disengagement mechanisms, in the context of underage drinking, the UDDS more strongly related to adolescents' engagement in underage drinking and experience of alcohol-related harm than a broad-based measure of transgressive behaviour. Consistent with expectations based on social cognitive theory, this finding affirms the need to conceptualise moral disengagement as a context specific process whereby people justify or excuse specific transgressive behaviours (Bandura, 1986; Boardley & Kavussanu, 2009; Caprara et al., 2009).

Findings from Chapter 3 support the emphasis in social cognitive theory on the importance of social sanctions in motivating behavioural performance (Bandura, 1986; Bussey & Bandura, 1999). The joint influence from mothers and peers on adolescents'

engagement in underage drinking and experience of alcohol-related harm also affirms the social cognitive perspective that it is important to consider social outcomes for different social figures and different alcohol-related behaviours (Bandura, 1986). It also suggests that theories which focus on the motivational influence of the peer group, such as social norm theory (Percy, 1997), may be further enhanced by also considering the prominent influence of parents, particularly for adolescents still living at home. Moreover, despite mean gender and grade differences in anticipated social outcomes, consistent with social cognitive theory (Bandura, 1986), the relationship between anticipated social outcomes and adolescents' underage drinking and experience of alcohol-related harm was consistent across gender and grade. As stated earlier, these findings indicate that anticipated social outcomes uniformly relate to adolescents' engagement in underage drinking and experience of alcohol-related harm for adolescent males and females and for older and younger students.

In the final paper, presented in Chapter 4, both underage drinking disengagement and anticipated social outcomes from mother, father and peer for being drunk independently related to adolescents' alcohol use and experience of alcohol-related harm across time. These findings are consistent with the social cognitive theory view that behaviour is not influenced solely by personal or social regulatory factors but by their joint influence (Bandura, 1986). Further, these findings indicate that underage drinking disengagement and anticipated social outcomes for being drunk are both consistently applicable to adolescents' alcohol use and experience of alcohol-related harm throughout adolescence.

Anticipated social outcomes for being drunk and underage drinking disengagement related to adolescents' experience of alcohol-related harm over and above their use of alcohol. This finding reinforces previous evidence indicating that adolescents' alcohol-related harm is not purely a product of the amount of alcohol adolescents consume (Benton et al., 2006; Little et al., 2013; Stice, Barrera, & Chassin, 1998; Turrise, Wiersma, & Hughes, 2000) and highlights the need for future research and theory to also consider how adolescents regulate

their environmental or social context in which they consume alcohol.

Implications for Intervention

This thesis highlights the importance of considering personal self-regulatory influences on adolescents' underage drinking. Skills based programs aimed at increasing adolescents' capacity to resist social influence to use or misuse alcohol and to learn strategies to reduce the harms associated with drinking, if adolescents do chose to consume alcohol, have shown small to moderate effects (McBride, Farrington, Midford, Meuleners, & Phillips, 2004; Newton, Vogel, Teesson, & Andrews, 2009; Vogl et al., 2009; Wilhelmsen, Laberg, & Klepp, 1994). Focusing on adolescents' personal standards, whether based on abstinence or on minimising harms from drinking, is one way that these interventions may be enhanced. Beyond the development of personal standards, this thesis also highlights the necessity of increasing adolescents' personal responsibility to adhere to their standards. To achieve this it is important to reduce justifications or excuses when standards may be violated.

To implement a personalised focus on individual standards and their self-regulation, interventions delivered through the internet may have utility. Already there is evidence of the efficacy of interventions delivered through this medium in schools (Champion, Newton, Barrett, & Teesson, 2013). Moreover, a growing body of research, mostly obtained through college samples, has identified the utility of providing personalised feedback through computer based programs (Riper et al., 2009; White et al., 2010). This personalised feedback has predominately focused on informing people of their drinking levels and risk of harm, as well as comparing individual drinking to peer norms (Bewick, Trusler, Mulhern, Barkham, & Hill, 2008; Dumas & Hannah, 2008; Kypri et al., 2013). There is potential for such approaches to be extended to school students, and to not only compare personal drinking to peer norms, but also to adolescents' own personal standards. Moreover, such an approach could also provide feedback to adolescents to showing they violate their personal standards and also increasing their adherence to their personal standards.

In addition to self-regulatory processes, this thesis also emphasises the importance of considering the social context in which these self-regulatory processes arise and the need to consider social influences on adolescents' alcohol use and experience of alcohol-related harm. It is important to consider whether the messages portrayed to adolescents in universal school based programs, or targeted interventions, are being reinforced in adolescents' families, peer groups, and wider community.

Many parents think that adolescents should not be supplied alcohol underage (Bourdeau, Miller, Vanya, Duke, & Ames, 2012; Kypri, Dean, & Stojanovski, 2007; Yu, 2003), yet feel powerless to prevent their child from drinking, feel pressure to allow their child to drink, and fear that underage drinking is inevitable (Gilligan, Kypri & Lubman, 2012; Stronach, 2003). Such fears may lead to parents providing inconsistent messages to their children about underage drinking (Bourdeau et al., 2012; Gilligan et al., 2012). Consequently, it is important to inform parents that they have an important influence on adolescents' alcohol use and experience of alcohol-related harm.

Interventions focused on parents and adolescents have shown some promise in delaying and reducing underage drinking (Koning et al., 2009; Spoth, Randall, Trudeau, Shin, & Redmond, 2008; Spoth, Redmond, Shin, 2001; Toumbourou, Douglas Gregg, Shortt, Hutchinson & Slaviero, 2013). A way to enhance these programs is to specifically focus on parents' standards for underage drinking and how these standards are communicated to adolescents. Parents need to be informed that it is their strong disapproval for adolescents drinking underage and being drunk which serves as a deterrent against adolescents using alcohol and experiencing alcohol-related harm. Further, there is often a discrepancy between parents' own attitudes and standards for behaviour and adolescents' perceptions of these attitudes and standards (Andrews, Hops, Ary, Tildesley, & Harris, 1993; Nelson, Patience, & MacDonald, 1999; Van Der Vorst, Engels, Meeus & Deković, 2006; Yu, 2003).

Consequently, it is necessary for parents to recognise that even if they disapprove of their

adolescent drinking underage or becoming drunk, it is important to consider how this disapproval is communicated (Nelson, Patience, & MacDonald, 1999)

To reduce the discrepancy between actual parental disapproval, and adolescents' perceptions of this disapproval, interventions need to consider how adolescents weigh, interpret, synthesise, and generalise the information they receive from the three previously identified primary modes of influence: *modelling* (i.e., parents' misuse of alcohol, and responses to siblings use of alcohol); *enactive experience* (i.e., parental supply of alcohol or responses to the adolescents' alcohol use), and *direct tuition* (i.e., parental rules, communication or conversation about alcohol). Interventions may benefit by providing parents with the information, resources, and skills necessary to enable them to maintain consistency across these three modes of influence and to set clear and consistent messages for how they want their adolescents to behave.

In addition to parental influences, this research also acknowledges the considerable influence of peers on adolescents' underage drinking and experience of alcohol-related harm. In Chapter 3, the majority of adolescents anticipated positive approval from peers for drinking alcohol and being drunk and this greater anticipated approval from peers related to adolescents greater underage drinking and experience of alcohol-related harm. Similar to parents, it is important to consider the messages adolescents are exposed to in their peer group. As Percy (1997) asserts, the heavy focus by the media on youth's antisocial behaviour and binge drinking, as well as adolescents joking about their alcohol use and getting drunk, may increase the peer perception of the prevalence and acceptability of drinking among the peer group. One way to reduce this misperception could be through targeted media campaigns within schools, highlighting that underage drinking is less prevalent and less accepted than adolescents perceive (Perkins, 2003). Already such programs have shown some effectiveness in reducing drinking in samples of college and high school students (DeJong et al., 2006; Haines, Barker, & Rice, 2003; Hansen & Graham, 1991; Mattern & Neighbors, 2004). There

is also evidence that higher disapproval of substance use within schools is linked to lower adolescent alcohol use (Kumar, O'Malley, Johnston, Schulenberg, & Bachman, 2002).

It is possible that creating an environment of disapproval will firstly, reduce explicit forms of approval, such as overt peer pressure through peer alcohol use or encouragement to use alcohol (Allen, Chango, Szvedo, Schad, & Marston, 2012; Jamison & Myers, 2008), and secondly, may also reduce acquiescence or passivity of silent bystanders, encouraging adolescents who disagree with underage drinking or its harmful consequences to express their disapproval.

Strengths of the Present Research

This research was the first to concurrently examine the impact of personal and social regulatory factors, derived from Bandura's (1986) social cognitive theory, on adolescents' underage drinking and experience of alcohol-related harm. The findings build on previous research on underage drinking and adolescents' experience of alcohol-related harm, helping to explain processes which influence and impede adolescents' behaviour regulation.

The UDDS and Anticipated Social Outcomes Scales were developed specifically for the present research. These scales have enabled the social cognitive processes of moral disengagement and anticipatory social outcomes to be examined in the context of underage drinking. In particular, the anticipated social outcome scales permitted separate investigation of the social outcomes adolescents anticipate from their mothers, fathers, and peers for drinking alcohol and being drunk. All the scales showed good internal reliability and acceptable construct validity and have the potential to be used in prevention and intervention programs to identify those students at increased risk of underage drinking and experiencing alcohol-related harm. Future research should examine the validity and reliability of these measures with others samples, including different ethnic groups and early adolescents.

Another major strength was that this research highlights the social influences on underage drinking while also considering adolescents' capacity to self-direct and self-regulate

their underage drinking behaviour. It was the first research to apply Bandura's (1986) self-regulatory model to underage drinking and adolescents' experience of alcohol-related harm. A strength of applying social cognitive theory to adolescents' alcohol use, is that it is a broad-based theory, which incorporates diverse factors including biological, cognitive and social influences on behaviour (Bandura, 1986). It's emphasis on the bidirectional relationship between these factors enables a focus on the agentic capacity of adolescents to select and influence their environment and to potentially regulate their own behaviour (Bandura, 1986). Hence, this theoretical approach is highly conducive to interventions, as it focuses not only on the underlying explanations for underage drinking, but also emphasises the mechanisms by which behaviour can be changed (Bandura, 2004). Specially this study highlights two central mechanisms conducive to change, underage drinking disengagement and anticipated social outcomes. It was found that even if adolescents hold negative judgements about underage drinking they may still drink underage and experience alcohol-related harm if they justify and excuse their drinking through the employment of underage drinking disengagement mechanisms. Moreover, in considering the influence of social outcomes on underage drinking and alcohol-related harm, this research specifically focused on differences, not only between parents and peers, but also mothers and fathers, emphasising the prominent influence of mothers on adolescents' alcohol use and experience of alcohol-related harm.

Finally, this thesis adds to the limited research on adolescents' experiences of alcohol-related harm. The latent growth model with time-varying covariates used in Chapter 4, allowed the contemporaneous examination of social and personal self-regulatory processes on adolescents' use of alcohol and on their experience of alcohol-related harm. As such, changes in alcohol use and alcohol-related harm were identified in relation to changes in anticipated social outcomes for being drunk and underage drinking disengagement. Findings from this study highlight that specific targeting of adolescents' excuses and justifications for underage drinking, as well as the social outcomes they anticipate for being drunk, have the potential to

reduce adolescents' escalation of alcohol use and their experience of alcohol-related harm.

Limitations in the Present Research

Limitations of the present research are noted. The first two studies were cross-sectional, therefore, results are limited to temporal associations and causal statements cannot be made. Also the longitudinal study, presented in Chapter 4, was based on time-varying associations within each time point, which also precludes casual determinations. Future experimental and longitudinal studies should be conducted to further investigate the casual relations between social cognitive processes and adolescents' underage drinking and experience of alcohol-related harm.

The UDSS and ASO Scales developed in the current thesis were theoretically driven, derived from qualitative research or based on prior scales, and demonstrated sound factor structures across grade and gender. To enhance the applicability of these scales to interventions, and to further affirm the validity of these scales, it is important that the findings from this thesis are replicated in future research. Determining the ability for these scales to predict adolescent alcohol use, over and above other established constructs which have been related to adolescents' alcohol use, including peer and parental alcohol use and favourable attitudes and expectations towards alcohol use, is another way that future research may further verify the validity of these new scales.

The use of self-report measures to assess adolescents' alcohol use and experience of alcohol-related harm was another limitation of the studies reported in this thesis. Self-report measures are susceptible to self-presentation or recall bias and have the potential to strengthen associations between findings due to shared method variance. It is often impractical or impossible, however, to obtain other external and valid measures of adolescents alcohol use (Dolcini, Adler, & Ginsberg, 1996). Adolescents often overestimate the drinking of their peers (Barkin, Smith & DuRant, 2002; Segrist, Corcoran, Jordon-Fleming, & Rose, 2007), which questions the validity of peer reports; parent and adolescent reports have been found to

be moderately correlated (McGillicuddy, Rychtarik, Morsheimer, & Burke-Storer, 2007), which questions the validity of parent reports; and biomarkers have been found to be unsuitable to screen for alcohol consumption among adolescence (Comasco et al., 2009). Consequently, the majority of research on adolescent alcohol use employs self-report measures. Self-report measures have been shown to be valid when administered in conditions of confidentiality (Babor, Stephens, & Marlatt, 1987; Clark & Winters, 2002; Dolcini et al., 1996) as was the case in this research.

This thesis was predominantly based on students who identified themselves as White Australian, although this contributes to the sparse literature specifically focusing on Australian adolescents, it is important to generalise these findings to different racial and ethnic groups. To achieve this, future studies should replicate these findings across divergent ethnic and racial groups. Moreover, this thesis focused on underage drinkers within a school based population. Therefore, the findings are not necessarily generalisable to adolescents' experiencing more clinically significant alcohol-related problems.

Future Directions

As stated earlier, future longitudinal research is needed to replicate the current findings. To extend the present findings, future research could assess adolescents' alcohol use and experience of alcohol-related harm throughout adolescence and, using methods such as latent growth class analysis, determine the different trajectories in alcohol use and alcohol-related harm and whether changes in underage drinking disengagement and anticipated social outcomes for being drunk predict changes in these trajectories. For instance, adolescents who steeply escalate their alcohol use have been identified as a particularly high risk group (Chan et al., 2013). To enhance the utility of underage drinking disengagement and anticipated social outcomes for being drunk in interventions, it would be useful to show that underage drinking disengagement and anticipated social outcomes differentiate this more at risk group from other adolescents.

This research has identified that underage drinking disengagement and anticipated social outcomes do relate to drinkers' experience of alcohol-related harm. Future research could extend these findings by examining possible mediating factors in this relationship. For example, future research could also explore whether adolescents who endorse disengagement strategies and who anticipate approval for being drunk are more likely to drink in risky or potentially harmful settings and are less likely to employ harm minimisation techniques.

Future research could also examine ways to specifically target adolescents' justifications and excuses for underage drinking and investigate ways to increase adolescents' responsibility for their alcohol use and experience of alcohol-related harm. Moreover, the focus of this research on adolescents' disengagement of underage drinking could be extended to also examine parents' justifications and excuses for their children's use of alcohol.

Further, research could examine Bandura's (1986) modes of influences (modelling, enactive experience and direct tuition), and how they relate to the personal standards that adolescents develop and the social outcomes they anticipate for their alcohol-related behaviour. In particular parental supply of alcohol is an area requiring further investigation. While some research suggests that parents supplying alcohol to their children may reduce adolescents propensity to engage in heavy drinking or problematic alcohol consumption (Bellis et al., 2007; Foley, Altman, Durant, & Wolfson, 2004), there is considerable evidence to the contrary (Gilligan, Kypri, Johnson, Lynagh, & Love, 2012; Komro, Maldonado-Molina, Tobler, Bonds, & Muller, 2007; Spijkerman et al., 2007; Van Den Eijnden, Van De Mheen, Vet, & Vermulst, 2011). It has been suggested that parental supply of alcohol has the potential to normalise underage drinking, condone drinking in a wider range of unsupervised settings, and result in future risky and problem drinking behaviours (Abar, Abar, & Turrisi, 2009; Van der Vorst, Engels, & Burke, 2010; Komro et al., 2007; Livingston, Testa, Hoffman, & Windle, 2010). The current research indicates that adolescents who anticipate strong disapproval from their parents for drinking alcohol are less likely to drink underage,

and if they anticipate strong disapproval for being drunk, are less likely to experience harm as a consequence of their drinking. It is important for future research to examine the impact that parental supply of alcohol, in addition to parental rules, modelling, and communication about alcohol, has on adolescents' anticipatory social outcomes for drinking alcohol and being drunk. Future research may also investigate whether these relationships vary based on the amount of alcohol supplied, the context in which alcohol is supplied, and the age of the adolescent.

Summary and Conclusions

This thesis highlights the importance of considering adolescents' capacity to self-direct and self-regulate their alcohol use and alcohol-related harm, while also acknowledging the social context in which this self-regulation occurs. Furthermore, it emphasises the need for intervention and research to consider external social influences on underage drinking and to ensure that the messages adolescents receive from their families, peer groups, schools, and broader community are consistent. Beyond these social influences this research also highlights the need to consider how adolescents perceive these social influences, as well as adolescents' propensity to endorse disengagement strategies to justify and excuse their underage drinking. Specific targeting of the social outcomes adolescents anticipate for drinking and being drunk, as well as addressing adolescents' justifications and excuses for underage drinking, has the potential to reduce adolescents' engagement in underage drinking, alcohol use, and experience of alcohol-related harm.

References

- Aas, H., & Klepp, K. (1992). Adolescents' alcohol use and perceived norms. *Scandinavian Journal of Psychology*, *33*, 315-325. doi:10.1111/j.1467-9450.1992.tb00920.x
- Abar, C., Abar, B., & Turrisi, R. (2009). The impact of parental modeling and permissibility on alcohol use and experienced negative drinking consequences in college. *Addictive Behaviors*, *34*, 542-547. doi:10.1016/j.addbeh.2009.03.019
- Abide, M. M., Richards, H. C., & Ramsay, S. G. (2001). Moral reasoning and consistency of belief and behavior: Decisions about substance abuse. *Journal of Drug Education*, *31*, 367-384. doi:10.2190/U798-F3UH-M1X5-73NB
- Ackard, D. M., Neumark-Sztainer, D., Story, M., & Perry, C. (2006). Parent-child connectedness and behavioral and emotional health among adolescents. *American Journal of Preventive Medicine*, *30*, 59-66. doi: 10.1016/j.amepre.2005.09.013
- Acock, A. C. (2005). Working with missing values. *Journal of Marriage and Family*, *67*, 1012-1028. doi:10.1111/j.1741-3737.2005.00191.x
- Agostinelli, G., & Grube, J. (2005). Effects of presenting heavy drinking norms on adolescents' prevalence estimates, evaluative judgments, and perceived standards. *Prevention Science*, *6*, 89-99. doi:10.1007/s11121-005-3408-1
- Ajzen, I. (1985). From decisions to actions: A theory of planned behavior. In J. Kuhl & J. Beckmann (Eds.), *Action-control: From cognition to behavior* (pp. 11-39). New York: Springer.
- Ajzen, I. (2005). *Attitudes, personality and behavior* (2nd ed.). Maidenhead: Open University Press.
- Ajzen, I., & Fishbein, M. (1980). *Understanding attitudes and predicting social behavior*. Englewood Cliffs, NJ: Prentice-Hall.
- Ajzen, I., & Madden, T. J. (1986). Prediction of goal-directed behavior: Attitudes, intentions, and perceived behavioral control. *Journal of Experimental Social Psychology*, *22*, 453-474. doi:10.1016/0022-1031(86)90045-4

- Alati, R., Baker, P., Betts, K. S., Connor, J., Little, K., Sanson, A., & Olsson, C.A. (2014). The role of parental alcohol use, parental discipline and antisocial behaviour on adolescent drinking trajectories. *Drug and Alcohol Dependence, 134*, 178-184. doi:10.1016/j.drugalcdep.2013.09.030
- Allen, J. P., Chango, J., Szewedo, D., Schad, M., & Marston, E. (2012). Predictors of susceptibility to peer influence regarding substance use in adolescence. *Child Development, 83*, 337-350. doi:10.1111/j.1467-8624.2011.01682.x
- Allen, M., Donohue, W. A., Griffin, A., Ryan, D., & Turner, M. M. (2003). Comparing the influence of parents and peers on the first choice to use drugs. *Criminal Justice and Behavior, 30*, 163–186. doi:10.1177/0093854802251002
- Amaro, H., Blake, S. M., Schwartz, P. M., & Flinchbaugh, L. J. (2001). Developing theory based substance abuse prevention programs for young adolescent girls. *Journal of Early Adolescence, 21*, 256–293. doi:10.1177/0272431601021003002
- Amonini, C., & Donovan, R. J. (2006). The relationship between youth's moral and legal perceptions of alcohol, tobacco and marijuana and use of these substances. *Health Education Research, 21*, 276-286. doi:10.1093/her/cyh064
- Anderson, K. G., & Brown, S. A. (2011). Middle school drinking: Who, where, and when. *Journal of Child & Adolescent Substance Abuse, 20*, 48-62. doi:10.1080/1067828X.2011.534362
- Andrews, J. A., Hops, H., Ary, D. V., Tildesley, E., & Harris, J. (1993). Parental influence on early adolescent substance use: Specific and nonspecific effects. *The Journal of Early Adolescence, 13*, 285-310. doi:10.1177/0272431693013003004
- Arbuckle, J. L. (2012). *IBM SPSS Amos 21 Users Guide*. Amos Development Corporation. Retrieved from <http://www-01.ibm.com/support/docview.wss?uid=swg27025132>
- Armitage, C. J., & Conner, M. (2001). Efficacy of the Theory of Planned Behaviour: A meta-analytic review. *The British Journal of Social Psychology, 40*, 471–499. doi:10.1348

/014466601164939

- Australian Institute of Health and Welfare (AIHW, 2011). *2010 National Drug Strategy Household Survey*. (Drug statistics series no. 25. Cat. no. PHE 145). Retrieved from <http://www.aihw.gov.au/publication-detail/?id=32212254712>
- Babor, T. F., Stephens, R. S., & Marlatt, G. A. (1987). Verbal report methods in clinical research on alcoholism: Response bias and its minimization. *Journal of Studies on Alcohol*, *48*, 410–424.
- Bahr, S. J., Hoffmann, J. P., & Yang, X. (2005). Parental and peer influences on the risk of adolescent drug use. *The Journal of Primary Prevention*, *26*, 529–551. doi:10.1007/s10935-005-0014-8
- Bandura, A. (1986). *Social foundations of thought and action*. Englewood Cliffs, NJ: Prentice-Hall.
- Bandura, A. (1999). A social cognitive theory of personality. In L. Pervin & O. John (Eds.), *Handbook of personality* (2nd ed., pp. 154-196). New York: Guilford Publications.
- Bandura, A. (2002). Selective Moral Disengagement in the exercise of moral agency. *Journal of Moral Education*, *13*, 101-119. doi:10.1080/0305724022014322
- Bandura, A. (2004). Health promotion by social cognitive means. *Health Education & Behavior*, *31*, 143-164. doi:10.1177/1090198104263660
- Bandura, A. (2006). Adolescent development from an agentic perspective. In F. Pajares & T. Urdan (Eds.), *Self-efficacy beliefs of adolescents* (Vol.5, pp. 1–43). Greenwich, CT: Information Age.
- Bandura, A., Barbaranelli, C., Caprara, G. V., & Pastorelli, C. (1996). Mechanisms of moral disengagement in the exercise of moral agency. *Journal of Personality and Social Psychology*, *2*, 364–374. doi:10.1037/0022-3514.71.2.364
- Bandura, A., Caprara, G. V., Barbaranelli, C., Pastorelli, C., & Regalia, C. (2001). Sociocognitive self-regulatory mechanisms governing transgressive behavior. *Journal*

of Personality and Social Psychology, 80, 125-135. doi:10.1037//0022-3514.80.1.125

- Barchia, K., & Bussey, K. (2011). Individual and collective social cognitive influences on peer aggression: Exploring the contribution of aggression efficacy, moral disengagement, and collective efficacy. *Aggressive Behavior*, 37, 107-120. doi:10.1002/ab.20375
- Barkin, S. L., Smith, K. S., & DuRant, R. H. (2002). Social skills and attitudes associated with substance use behaviors among young adolescents. *Journal of Adolescent Health*, 30, 448-454. doi:10.1016/S1054-139X(01)00405-0
- Barnes, G. M., Welte, J. W., Hoffman, J. H., & Dintcheff, B. A. (1999). Gambling and alcohol use among youth: Influences of demographic socialization and individual factors. *Addictive Behaviors*, 24, 749-767. doi:10.1016/S0306-4603(99)00048-9
- Barnes, G. M., Welte, J. W., Hoffman, J. H., & Dintcheff, B. A. (1999). Shared predictors of youthful gambling, substance use, and delinquency. *Psychology of Addictive Behaviors*, 19, 165-174. doi:10.1037/0893-164X.19.2.165
- Baron, R. M., & Kenny, D. A. (1986). The moderator–mediator variable distinction in social psychological research: Conceptual, strategic, and statistical considerations. *Journal of Personality & Social Psychology*, 51, 1173-1182. doi:10.1037/0022-3514.51.6.1173
- Bauman, K. E., & Ennett, S. T. (1996). On the importance of peer influence for adolescent drug use: Commonly neglected considerations. *Addiction*, 91, 185-198. doi:10.1111/j.1360-0443.1996.tb03175.x
- Bava, S., & Tapert, S. F. (2010). Adolescent brain development and the risk for alcohol and other drug problems. *Neuropsychology Review*, 20, 398-413. doi:10.1007/s11065-010-9146-6
- Belendiuk, K. A., Molina, B. S. G., & Donovan, J. E. (2010). Concordance of adolescent reports of friend alcohol use, smoking, and deviant behavior as predicted by quality of

relationship and demographic variables. *Journal of Studies on Alcohol and Drugs*, 71, 253-257. Retrieved from <http://go.galegroup.com/ps/i.do?issn=1937-1888&v=2.1&u=macquarie&it=Jlourl&p=EAIM&sw=w>

- Bellis, M. A., Hughes, K., Merleo, M., Tocque, K., Hughes, S., Allen, T., . . . Fe-Rodriguez, E. (2007). Predictors of risky alcohol consumption in schoolchildren and their implications for preventing alcohol-related harm. *Substance Abuse Treatment, Prevention, and Policy*, 2, ArtID 15. doi: 10.1186/1747-597X-2-15
- Benton, S. L., Downey, R. G., Glider, P. S., Benton, S. A., Shin, K., Newton, D. W., . . . Price, A. (2006). Predicting Negative Drinking Consequences: Examining Descriptive Norm Perception. *Journal of Studies on Alcohol*, 67, 399-405. Retrieved from <http://go.galegroup.com/ps/i.do?action=interpret&v=2.1&u=macquarie&it=Jlourl&issn=0096-882X&p=EAIM&sw=w&authCount=1>
- Berkowitz, A. D. (2003). Applications of social norms theory to other health and social justice issues. In H. W. Perkins (Ed.), *The social norms approach to preventing school and college age substance abuse: A handbook for educators, counselors, clinicians* (pp. 259-279). San Francisco: Jossey-Bass.
- Berndt, N. C., Hayes, A. F., Verboon, P., Lechner, L., Bolman, C., & De Vries, H. (2013). Self-efficacy mediates the impact of craving on smoking abstinence in low to moderately anxious patients: results of a moderated mediation approach. *Psychology of Addictive Behaviors*, 27, 113-124. doi:10.1037/a0028737
- Bewick, B. M., Trusler, K., Mulhern, B., Barkham, M., & Hill, A. J. (2008). The feasibility and effectiveness of a web-based personalised feedback and social norms alcohol intervention in UK university students: A randomised control trial. *Addictive Behaviors*, 33, 1192–1198. doi:10.1016/j.addbeh.2008.05.002
- Beyers, J. M., Toumbourou, J. W., Catalano, R. F., Arthur, M. W., & Hawkins, J. D. (2004). A cross-national comparison of risk and protective factors for adolescent substance

use: The United States and Australia. *Journal of Adolescent Health*, 35, 3-16.

doi:10.1016/j.jadohealth.2003.08.015

Blanton, H., Gibbons, F. X., Gerrard, M., Conger, K. J., & Smith, G. E. (1997). Role of family and peers in the development of prototypes associated with substance use.

Journal of Family Psychology, 11, 271-288. doi:10.1037/0893-3200.11.3.271

Blobaum, E. M., & Anderson, J. F. (2006). The Impact of Exposure and Perceived

Disapproval of Underage Drinking. *Criminal Justice Studies: A Critical Journal of Crime, Law & Society*, 19, 171-192. doi:10.1080/14786010600764559

Bloomfield, K., Gmel, G., Neve, R., & Mustonen, H. (2001). Investigating gender

convergence in alcohol consumption in Finland, Germany, The Netherlands, and Switzerland: A repeated survey analysis. *Substance Abuse*, 22, 39-53.

doi:10.1080/08897070109511444

Bloomfield, K., Rossow, I., & Norström, T. (2009). Changes in alcohol-related harm after alcohol policy changes in Denmark. *European Addiction Research*, 15, 224-231.

doi:10.1159/000239416

Boardley, I. D., & Kavussanu, M. (2007). Development and validation of the Moral

Disengagement in Sport Scale. *Journal of Sport and Exercise Psychology*, 29, 608-

628. Retrieved from [http://web.a.ebscohost.com/ehost/detail?sid=d3310e4c-58b0-](http://web.a.ebscohost.com/ehost/detail?sid=d3310e4c-58b0-4472-b55e-b291c3071118%40sessionmgr4003&vid=1&hid=4106&bdata)

[4472-b55e-b291c3071118%40sessionmgr4003&vid=1&hid=4106&bdata](http://web.a.ebscohost.com/ehost/detail?sid=d3310e4c-58b0-4472-b55e-b291c3071118%40sessionmgr4003&vid=1&hid=4106&bdata)

[=JnNpdGU9ZWhvc3QtbGl2ZQ%3d%3d#db=s3h&jid=SEG](http://web.a.ebscohost.com/ehost/detail?sid=d3310e4c-58b0-4472-b55e-b291c3071118%40sessionmgr4003&vid=1&hid=4106&bdata)

Boardley, I. D., & Kavussanu, M. (2009). The influence of social variables and moral

disengagement on prosocial and antisocial behaviours in field hockey and netball.

Journal of Sports Sciences, 27, 843-854. doi:10.1080/02640410902887283

Bogenschneider, K., Wu, M., Raffaelli, M., & Tsay, J. C. (1998). Parent influences on

adolescent peer orientation and substance use: The interface of parenting practices and

values. *Child Development*, 69, 1672-1688. doi:10.2307/1132139

- Borsari, B., & Carey, K. B. (2006). How the quality of peer relationships influences college alcohol use. *Drug and Alcohol Review, 25*, 361-370. doi:10.1080/09595230600741339
- Bourdeau, B., Miller, B., Vanya, M., Duke, M., & Ames, G. (2012). Defining alcohol-specific rules among parents of older adolescents: Moving beyond no tolerance. *Journal of Family Communication, 12*, 111-128. doi:10.1080/15267431.2011.561140
- Bradley, B. J., & Greene, A. C. (2013). Do health and education agencies in the United States share responsibility for academic achievement and health? A review of 25 years of evidence about the relationship of adolescents' academic achievement and health behaviors. *Journal of Adolescent Health, 52*, 523-532. doi:10.1016/j.jadohealth.2013.01.008
- British Columbia Ministry of Health Services (2010). *Health Minds, Healthy People—A Ten-Year Plan to Address Mental Health and Substance Use in British Columbia*. Retrieved from http://www.health.gov.bc.ca/library/publications/year/2010/healthy_minds_healthy_people.pdf - 268k - 2011-12-14
- Brock, T. C., & Buss, A. H. (1962). Dissonance, aggression, and evaluation of pain. *Journal of Abnormal and Social Psychology, 65*, 197-202. doi:10.1037/h0048948
- Brock, T. C., & Buss, A. H. (1964). Effects of justification for aggression and communication with the victim on post aggression dissonance. *Journal of Abnormal and Social Psychology, 68*, 403-412. doi:10.1037/h0042571
- Brody, G. H., Ge, X., Katz, J., & Arias, I. (2000). A longitudinal analysis of internalization of parental alcohol-use norms and adolescent alcohol use. *Applied Developmental Science, 4*, 71-79. doi:10.1207/S1532480XADS0402_2
- Brook, J. S., Whiteman, M., Gordon, A. S., Nomura, A. S., & Brook, D. W. (1986). Onset of adolescent drinking: A longitudinal study of intrapersonal and interpersonal antecedents. *Advances in Alcohol & Substance Abuse, 5*, 91-110. doi:10.1300

/J251v05n03_07

- Brown, S. A., Creamer, V. A., & Stetson, B. A. (1987). Adolescent alcohol expectancies in relation to personal and parental drinking patterns. *Journal of Abnormal Psychology, 96*, 117–121. doi:10.1037/0021-843X.96.2.117
- Browne M. W., & Cudeck, R. (1993). Alternative ways of assessing model fit. In K. A. Bollen & J. S. Long (Eds.), *Testing structural equation models* (pp. 136–162). Newbury Park, CA: Sage.
- Brown, S. A., Goldman, M. S., Inn, A., & Anderson, L. (1980). Expectations of reinforcement from alcohol: Their domain and relation to drinking patterns. *Journal of Consulting and Clinical Psychology, 48*, 419-426. doi:10.1037/0022-006X.48.4.419
- Buchmann, A. F., Schmid, B., Blomeyer, D., Becker, K., Treutlein, J., Zimmermann, U. S., . . . Laucht, M. (2009). Impact of age at first drink on vulnerability to alcohol-related problems: Testing the marker hypothesis in a prospective study of young adults. *Journal of Psychiatric Research, 43*, 1205–1212. doi:10.1016/j.jpsychires.2009.02.006
- Bussey, K. (1999). Children’s conceptualization and evaluation of different types of lies and truths. *Child Development, 70*, 1338-1347. doi:10.1111/1467-8624.00098
- Bussey, K., & Bandura, A. (1992). Self-regulatory mechanisms governing gender development. *Child Development, 63*, 1236-1250. doi:10.2307/1131530
- Bussey, K., & Bandura, A. (1999). Social cognitive theory of gender development and differentiation. *Psychological Review, 106*, 676-713. doi:10.1037/0033-295X.106.4.676
- Bussey, K., & Quinn, C. (2014). *The moderating role of empathy and perspective taking on the relationship between moral disengagement and aggression*. Manuscript submitted for publication.
- Cabrera, N., Fitzgerald, H. E., Bradley, R. H., Roggman, L. (2007). Modeling the dynamics of

- paternal influences on children over the life course. *Applied Developmental Science*, *11*, 185-189. doi:10.1080/10888690701762027
- Caffray, C. M., & Schneider, S. L. (2000). Why do they do it? Affective motivators in adolescents' decisions to participate in risk behaviours. *Cognition and Emotion*, *14*, 543-576. doi:10.1080/026999300402790
- Cail, J., & LaBrie, J. W. (2010). Disparity between the perceived alcohol-related attitudes of parents and peers increases alcohol risk in college students. *Addictive Behaviors*, *35*, 135-139. doi:10.1016/j.addbeh.2009.09.019
- Callas, P. W., Flynn, B. S., & Worden, J. K. (2004). Potentially modifiable psychosocial factors associated with alcohol use during early adolescence. *Addictive Behaviors*, *29*, 1503-1515. doi:10.1016/j.addbeh.2004.02.028
- Caprara, G. V., Fida, R., Vecchione, M., Tramontano, C., & Barbaranelli, C. (2009). Assessing civic moral disengagement: Dimensionality and construct validity. *Personality and Individual Differences*, *47*, 504-509. doi:10.1016/j.paid.2009.04.027
- Caprara, G. V., Tisak, M. S., Alessandri, G., Fontaine, R. G., Fida, R., & Paciello, M. (2014). The contribution of moral disengagement in mediating individual tendencies toward aggression and violence. *Developmental Psychology*, *50*, 71-85. doi:10.1037/a0034488
- Cauffman, E., Piquero, A. R., Kimonis, E., Steinberg, L., Chassin, L., & Fagan, J. (2007). Legal, individual, and environmental predictors of court disposition in a sample of serious adolescent offenders. *Law and Human Behavior*, *31*, 519-535. doi:10.1007/s10979-006-9076-2
- Cavazos-Rehg, P., Krauss, M. J., Spitznagel, E. L., Schootman, M., Cottler, L. B., & Bierut, L. J. (2011). Substance use and the risk for sexual intercourse with and without a history of teenage pregnancy among adolescent females. *Journal of Studies on Alcohol and Drugs*, *72*, 194-198. Retrieved from <http://go.galegroup.com/ps/i.do?issn>

=19371888&v=2.1&u=macquarie&it=Jlourl&p=EAIM&sw=w

- Chan, G. C. K., Kelly, A. B., Toumbourou, J. W., Hemphill, S. A., Young, R. M., Haynes, M. A., Catalano, R. F. (2013). Predicting steep escalations in alcohol use over the teenage years: Age-related variations in key social influences. *Addiction, 108*, 1924-1932. doi:10.1111/add.12295
- Chassin, L., Curran, P. J., Hussong, A. M., & Colder, C. R. (1996). The relation of parent alcoholism to adolescent substance use: a longitudinal follow-up study. *Journal of Abnormal Psychology, 105*, 70–80. doi:10.1037/0021-843X.105.1.70
- Cheung, M. W. (2007). Comparison of methods of handling missing time-invariant covariates in latent growth models under the assumption of missing completely at random. *Organizational Research Methods, 10*, 609-634. doi:10.1177/1094428106295499
- Cheung, G. W., & Rensvold, R. B. (2002). Evaluating goodness-of-fit indexes for testing measurement invariance. *Structural Equation Modelling, 9*, 233-255. doi:10.1207/S15328007SEM0902_5
- Chikritzhs, T., Pascal, R., & Jones, P. (2004). *Under-aged drinking among 14-17 year olds and related harms in Australia*. (National Alcohol Indicators, Bulletin No.7). Retrieved from National Drug Research Institute website: <http://www.ndri.curtin.edu.au/local/docs/pdf/naip/naip007.pdf>
- Clark, D. B., Thatcher, D. L., & Tapert, S. F. (2008). Alcohol, psychological dysregulation, and adolescent brain development. *Alcoholism: Clinical and Experimental Research, 32*, 375-385. doi:10.1111/j.1530-0277.2007.00601.x
- Clark, D. B., & Winters, K. M. (2002). Measuring risks and outcomes in substance use disorders prevention research. *Journal of Consulting and Clinical Psychology, 70*, 1207–1223. doi:10.1037/0022-006X.70.6.1207
- Cohen, J., Cohen, P., West, S. G., & Aiken, L. S. (2003). *Applied multiple regression/correlation analysis for behavioral sciences*. Mahwah, NJ: Lawrence

Erlbaum Associates.

- Cohn, E. S., Bucolo, D., Rebellon, C. J., & Van Gundy, K. (2010). An integrated model of legal and moral reasoning and rule-violating behavior: The role of legal attitude. *Law & Human Behavior, 34*, 295-309. doi:10.1007/s10979-009-9185-9
- Cole, D. A., Ciesla, J. A., & Steiger, H. (2007). The insidious effects of failing to include design-driven correlated residuals in latent-variable covariance structure analysis. *Psychological Methods, 12*, 381-398. doi:10.1037/1082-989X.12.4.381
- Collins, S., & Carey, K. (2007). The theory of planned behavior as a model of heavy episodic drinking among college students. *Psychology of Addictive Behavior, 21*, 498-507. doi:10.1037/0893-164X.21.4.498
- Collins, D., & Lapsley, H. (2008). *The costs of tobacco, alcohol and illicit drug abuse to Australian society in 2004-05* (National Drug Strategy Monograph Series No. 64). Retrieved from Australian Government Department of Health and Ageing website: <http://www.nationaldrugstrategy.gov.au/internet/drugstrategy/publishing.nsf/content/mono64>
- Collins, W. A., Maccoby, E. E., Steinburg, L., Hetherington, E. M., & Bornstein, M. H. (2000). Contemporary research on parenting: The case for nature and nurture. *American Psychologist, 55*, 218-232. doi:10.1037/0003-066X.55.2.218
- Comasco, E., Nordquist, N., Leppert, J., Orelund, L., Kronstrand, R., Alling, C., Nilsson, K. W. (2009). Adolescent alcohol consumption: Biomarkers PEth and FAEE in relation to interview and questionnaire data. *Journal of Studies on Alcohol and Drugs, 70*, 797-804. Retrieved from <http://go.galegroup.com.simsrad.net.ocs.mq.edu.au/ps/i.do?action=interpret&v=2.1&u=macquarie&it=Jlourl&issn=1937-1888&p=EAIM&sw=w&authCount=1>
- Conner, M., & Armitage, C. J. (1998). Extending the theory of planned behavior: A review and avenues for further research. *Journal of Applied Social Psychology, 28*, 1429-

1464. doi:10.1111/j.1559-1816.1998.tb01685.x

- Conrod, P. J., Castellanos-Ryan, N., & Mackie, C. (2011). Long-term effects of a personality-targeted intervention to reduce alcohol use in adolescents. *Journal of Consulting and Clinical Psychology, 79*, 296-306. doi:10.1037/a0022997
- Cooke, R., Sniehotta, F., & Schuz, B. (2007). Predicting binge-drinking behavior using an extended TPB: Examining the impact of anticipated regret and descriptive norms. *Alcohol & Alcoholism, 42*, 84-91. doi:10.1093/alcalc/agl115
- Cooper, M. L., Wood, P. K., Orcutt, H. K., & Albino, A. (2003). Personality and the predisposition to engage in risky or problem behaviors during adolescence. *Journal of Personality and Social Psychology, 84*, 390-410. doi:10.1037/0022-3514.84.2.390
- Costa, F. M., Jessor, R., & Turbin, M. S. (1999). Transition into adolescent problem drinking: The role of psychosocial risk and protective factors. *Journal of Studies on Alcohol, 60*, 480-490. Retrieved from <http://go.galegroup.com/ps/i.do?action=interpret&v=2.1&u=macquarie&it=Jlourl&issn=0096-882X&p=EAIM&sw=w&authCount=1>
- Crews, F., He, J., & Hodge, C. (2007). Adolescent cortical development: A critical period of vulnerability for addiction. *Pharmacology, Biochemistry and Behavior, 86*, 189-199. doi:10.1016/j.pbb.2006.12.001
- Crews, F. T., Mdzinarishvili, A., Kim, D., He, J., & Nixon, K. (2006). Neurogenesis in adolescent brain is potently inhibited by ethanol. *Neuroscience, 137*, 437-445. doi:10.1016/j.neuroscience.2005.08.090
- Dal Cin, S., Worth, K. A., Gerrard, M., Gibbons, F. X., Stoolmiller, M., Wills, T. A., & Sargent, J. D. (2009). Watching and drinking: Expectancies, prototypes, and friends' alcohol use mediate the effect of exposure to alcohol use in movies on adolescent drinking. *Health Psychology, 28*, 473-483. doi:10.1037/a0014777
- Danielsson, A., Wennberg, P., Tengstrom, A., & Romelsjo, A. (2010). Adolescent alcohol use trajectories: Predictors and subsequent problems. *Addictive Behaviors, 35*, 848-852.

doi:10.1016/j.addbeh.2010.05.001

- Dearing, R. L., Stuewig, J., & Tangney, J. P. (2005). On the importance of distinguishing shame from guilt: Relations to problematic alcohol and drug use. *Addictive Behaviors*, *30*, 1392-1404. doi:10.1016/j.addbeh.2005.02.002
- DeJong, W., Schneider, S. K., Towvim, L. G., Murphy, M. J., Doerr, E. E., Simonsen, N. R., . . . Scribner, R. A. (2006). A multisite randomized trial of social norms marketing campaigns to reduce college student drinking. *Journal of Studies on Alcohol and Drugs*, *67*, 868-879. Retrieved from <http://go.galegroup.com.simsrad.net.ocs.mq.edu.au/ps/i.do?issn=0096-882X&v=2.1&u=macquarie&it=Jlourl&p=EAIM&sw=w>.
- Detert, J. R., Trevino, L. K., & Sweitzer, V. L. (2008). Moral disengagement in ethical decision making: A study of antecedents and outcomes. *Journal of Applied Psychology*, *93*, 374-391. doi:10.1037/0021-9010.93.2.374
- Dolcini, M. M., Adler, N. E., & Ginsberg, D. (1996). Factors influencing agreement between self-reports and biological measures of smoking among adolescents. *Journal of Research on Adolescence*, *6*, 515-542. Retrieved <http://web.a.ebscohost.com/ehost/detail?sid=d76c5d11-e1fa-42fb-83e32a45a5329838%40sessionmgr4004&vid=1&hid=4106&bdata=JnNpdGU9ZWwhvc3QtbGl2ZQ%3d%3d#db=aph&jid=Z3H>
- Donaldson, L. J. (2010). *Annual report of the Chief Medical Officer 2009*. UK: Crown.
- Donovan, J.E. (2004). Adolescent alcohol initiation: A review of psychosocial risk factors. *Journal of Adolescent Health*, *35*, 529e7–529e18. doi:16/j.jadohealth.2004.02.003
- Donovan, J. E. (2007). Really underage drinkers: the epidemiology of children's alcohol use in the United States. *Prevention Science*, *8*, 192–205. doi:10.1007/s11121-007-0072-7
- Donovan, J. E., & Molina, B. S. (2008). Children's introduction to alcohol use: sips and tastes. *Alcoholism and Clinical Experimental Research*, *32*, 108-119. doi:10.1111/j.1530-0277.2007.00565.x

- Donovan, J. E., & Molina, B. S. (2011). Childhood risk factors for early-onset drinking. *Journal of Studies on Alcohol and Drugs*, 72, 741-751. Retrieved from <http://go.galegroup.com/ps/i.do?issn=19371888&v=2.1&u=macquarie&it=Jlourl&p=EAIM&sw=w>
- Doumas, D. M., & Hannah, E. (2008). Preventing high-risk drinking in youth in the workplace: A web-based normative feedback program. *Journal of Substance Abuse Treatment*, 34, 263-271. doi:10.1016/j.jsat.2007.04.006
- Duncan, T. E., & Duncan, S. C. (2004). An introduction to latent growth modeling. *Behavior Therapy*, 35, 333-363. doi:10.1016/S0005-7894(04)80042-X
- Duncan, S. C., Duncan, T. E., & Strycker, L. A. (2000). Risk and protective factors influencing adolescent problem behavior: A multivariate latent growth curve analysis. *Annals of Behavioral Medicine*, 22, 103-109. doi:10.1007/BF02895772
- Duncan, S. C., Gau, J. M., Duncan, T. E., & Strycker, L. A. (2011). Development and correlates of alcohol use from ages 13-20. *Journal of Drug Education*, 41, 235-252. doi:10.2190/DE.41.3.a
- Duncan, T. E., Tildesley, E., Duncan, S. C., & Hops, H. (1995) The consistency of family and peer influences on the development of substance use in adolescence. *Addiction*, 90, 1647-1660. doi:10.1111/j.1360-0443.1995.tb02835.x
- Durkin, K. F., Blackston, A., Dowd, S., Franz, S., Eagle, T. (2009). The comparative impacts of risk and protective factors on alcohol-related problems in a sample of university students. *Journal of Offender Rehabilitation*, 48, 696-709. doi:10.1080/10509670903287766
- Eaton, D. K., Kann, L., Kinchen, S., Shanklin, S., Flint, K. H., Hawkins, J., . . . Wechsler, H. (2012). Youth risk behavior surveillance - United States, 2011. *Morbidity and Mortality Weekly Report Surveillance Summary*, 61(4), 1-162. doi:10.1111/j.1746-1561.2006.00127.x

- Edwards, J. R., & Lambert, L. S. (2007). Methods for integrating moderation and mediation: A general analytical framework using moderated path analysis. *Psychological Methods, 12*, 1-22. doi:10.1037/1082-989X.12.1.1
- Eisenbach-Stangl, I., & Thom, B. (2009). Intoxication and intoxicated behaviour in contemporary European cultures: Myths, realities and the implications for policy, (prevention) practice and research. *Policy Brief (February)*. Retrieved from European Centre for Social Welfare, Policy and Research website: http://www.euro.centre.org/data/1234275390_35281.pdf
- Eklund, J. M., & Klinteberg, B. (2009). Alcohol use and patterns of delinquent behaviour in male and female adolescents. *Alcohol & Alcoholism, 44*, 607-614. doi:10.1093/alcalc/agn107
- Elek, E., Miller-Day, M., & Hecht, M. L. (2006). Influences of personal, injunctive, and descriptive norms on early adolescent substance use. *Journal of Drug Issues, 36*, 147-172. doi:10.1177/002204260603600107
- Enders, C. (2001). A primer on maximum likelihood algorithms available for use with missing data. *Structural Equation Modeling, 8*, 128-141. doi:10.1207/S15328007SEM0801_7
- Enders, C. K. & Bandalos, D. L. (2001). The relative performance of full information maximum likelihood estimation for missing data in structural equation models. *Structural Equation Modeling: A Multidisciplinary Journal, 8*, 430-457. doi:10.1207/S15328007SEM0803_5
- Englund, M. M., Egeland, B., Oliva, E. M., & Collins, W. A. (2008). Childhood and adolescent predictors of heavy drinking and alcohol use disorders in early adulthood: A longitudinal developmental analysis. *Addiction, 103*, 23-35. doi:10.1111/j.1360-0443.2008.02174.x
- Evans-Whipp, T. J., Plenty, S. M., Catalano, R. F., Herrenkohl, T. I., & Toumbourou, J. W.

- (2013). The impact of school alcohol policy on student drinking. *Health Education Research, 28*, 651-662. doi:10.1093/her/cyt068
- Fergusson, D. M., & Lynskey, M.T. (1996). Alcohol misuse and adolescent sexual behaviors. *Pediatrics, 1*, 91– 6. Retrieved from <http://web.a.ebscohost.com/ehost/detail?sid=02e06c35-48a9-48e5-a51c-a3269ad1c35a%40sessionmgr4005&vid=1&hid=4106&bdata=JnNpdGU9ZWVhc3QtbGl2ZQ%3d%3d#db=aph&jid=PDT>
- Fishbein, M., & Ajzen, I. (1975). *Belief, attitude, intention and behavior: An introduction to theory and research*. Reading, MA: Addison-Wesley.
- Flory, K., Lynam, D., Milich, R., Leukefeld, C., & Clayton, R. (2004). Early adolescent through young adult alcohol and marijuana use trajectories: Early predictors, young adult outcomes, and predictive utility. *Developmental Psychopathology, 16*, 193–213. doi:10.1017/S0954579404044475
- Foley, K. L., Altman, D., Durant, R. H., & Wolfson, M. (2004). Adults' approval and adolescents' alcohol use. *Journal of Adolescent Health, 35*, 17-26. doi:10.1016/j.jadohealth.2003.12.001
- Ford, J. A., & Hill, T. D. (2012). Religiosity and adolescent substance use: Evidence from the national survey on drug use and health. *Substance Use & Misuse, 47*, 787-798. doi:10.3109/10826084.2012.667489
- Foxcroft, D. R., & Tsertsvadze, A. (2011). Universal school-based prevention programs for alcohol misuse in young people. *Cochrane Database of Systematic Reviews, 2011* (5), CD009113. doi:10.1002/14651858.CD009113.
- Foxcroft, D., Ireland, D., Lowe, G., & Breen, R. (2002). Primary prevention for alcohol misuse in young people. *Cochrane Database of Systematic Reviews, 2002* (3), CD003024. doi:10.1002/14651858.CD003024
- Gentle-Genitty, C. S. (2010). Common predictors for explaining youth antisocial behavior: A perspective from ten longitudinal studies. *Social Work in Mental Health, 8*, 543-559.

doi:10.1080/15332980902983824

Gilgun, J. F. (1995). We shared something special: The moral discourse of incest perpetrators.

Journal of Marriage and the Family, 57, 265-281. doi:10.2307/353682

Gilligan, C., Kypri, K., Johnson, N., Lynagh, M., & Love, S., (2012). Parental supply of

alcohol and adolescent risky drinking. *Drug and Alcohol Review*, 31, 754-762. doi:

10.1111/j.1465-3362.2012.00418.x

Gilligan, C., Kypri, K., & Lubman, D. (2012). Changing paternal behaviour to reduce risky

drinking among adolescents: Current evidence and future directions. *Alcohol and*

Alcoholism, 47, 349-354. doi:10.1093/alcalc/ags022

Gini, G., Pozzoli, T., & Hymel, S. (2014). Moral disengagement among children and youth: A

meta-analytic review of links to aggressive behavior. *Aggressive Behavior*, 40, 56-68.

doi:10.1002/ab.21502

Grant, B. F., & Dawson, D. A. (1997). Age at onset of alcohol use and its association with

DSM-IV alcohol abuse and dependence: results from the National Longitudinal

Alcohol Epidemiologic Survey. *Journal of Substance Abuse*, 9, 103-110. doi:10.1016

/S0899-3289(97)90009-2

Grube, J. W. (1997). Preventing sales of alcohol to minors: Results from a community trial.

Addiction, 92, S251-60. doi:10.1111/j.1360-0443.1997.tb02995.x

Grube, J. W., & Nygaard, P. (2005). Alcohol policy and youth drinking: Overview of

effective interventions for young people. In T. Stockwell, P. J. Gruenewald, J.

Toumbourou, & W. Loxley (Eds.), *Preventing harmful substance use: The evidence base for policy and practice* (pp.113-127). New York: Wiley.

Gullo, M. J., Dawe, S., Kambouropoulos, N., Staiger, P. K., & Jackson, C. J. (2010). Alcohol

expectancies and drinking refusal self-efficacy mediate the association of impulsivity

with alcohol misuse. *Alcoholism: Clinical and Experimental Research*, 34, 1386-

1399. doi:10.1111/j.1530-0277.2010.01222.x

- Gutman, L. M., Eccles, J. S., Peck, S., & Malanchuk, O. (2011). The influence of family relations on trajectories of cigarette and alcohol use from early to late adolescence. *Journal of Adolescence, 34*, 119-128. doi:10.1016/j.adolescence.2010.01.005
- Guttmanova, K., Bailey, J. A., Hill, K. G., Lee, J. O., Hawkins, J. D., Woods, M. L., & Catalano, R. F. (2011). Sensitive periods for adolescent alcohol use initiation: Predicting the lifetime occurrence and chronicity of alcohol problems in adulthood. *Journal of Studies on Alcohol, 72*, 221-231. Retrieved from <http://go.galegroup.com/ps/i.do?issn=1937-1888&v=2.1&u=macquarie&it=Jlourl&p=EAIM&sw=w>
- Haines, M., Barker, G., & Rice, R. (2003). Using social norms to reduce alcohol and tobacco use in two Midwestern high schools. In H. W. Perkins (Ed.), *The social norms approach to preventing school and college age substance abuse: A handbook for educators, counselors, and clinicians* (pp. 235–244). San Francisco, CA: Jossey-Bass.
- Hansen, W. B., & Graham, J. W. (1991). Preventing alcohol, marijuana, and cigarette use among adolescents: peer pressure resistance training versus establishing conservative norms. *Preventive Medicine, 20*, 414–430. doi:10.1016/0091-7435(91)90039-7
- Hanson, W., Malotte, C., & Fielding, J. (1985). The bogus pipeline revisited: The use of the threat of detection as a means of increasing self-reports of tobacco use. *Journal of Applied Psychology, 70*, 789-792. doi:10.1037/0021-9010.70.4.789
- Hayes, A. F. (2009). Beyond Baron and Kenny: Statistical Mediation Analysis in the New Millennium. *Communication Monographs, 76*, 408-420. doi:10.1080/03637750903310360
- Hayes, A. F. (2012). *PROCESS: A versatile computational tool for observed variable mediation, moderation, and conditional process modeling* [White paper]. Retrieved from <http://www.afhayes.com/public/process2012.pdf>
- Hayes, L., Smart, D., Toumbourou, J.W., & Sanson, A. (2004). *Parenting Influences on Adolescent Alcohol Use* (Research Report No. 10). Retrieved from Australian Institute

of Family Studies website: <http://www.aifs.gov.au/institute/pubs/resreport10/parentinginfluences.html>.

- Henderson, H., Nass, L., Payne, C., Phelps, A., & Ryley, A. (2013). *Smoking, drinking and drug use among young people in England in 2012*. Retrieved from Health and Social Care Information Centre website: <http://www.hscic.gov.uk/catalogue/PUB11334>
- Hendershot, C. S., Neighbors, C., George, W. H., McCarthy, D. M., Wall, T. L., Liang, T., & Larimer, M. E. (2009). ALDH2, ADH1B and alcohol expectancies: Integrating genetic and learning perspectives. *Psychology of Addictive Behaviors, 23*, 452-463. doi:10.1037/a0016629
- Hibbert, M., Caust, J., Patton, G. C., Rosier, M., & Bowes, G. (1996). *The health of young people in Victoria: Adolescent Health Survey*. Melbourne: Centre for Adolescent Health Monograph.
- Hibell B, Guttormson U, Ahlström S, Balakireva, O., Bjarnason, T., Kokkevi, A., & Kraus, L. (2012) *The 2011 ESPAD Report: Substance use among students in 36 European countries*. Stockholm, Sweden: The Swedish Council for Information on Alcohol and Other Drugs.
- Hox, J. J., & Bechger, T. M. (2001). An introduction to structural equation modeling. *Family Science Review, 11*, 354–373. Retrieved from <http://www.google.com.au/url?sa=t&rct=j&q=&esrc=s&source=web&cd=1&ved=0CEAQFjAA&url=http%3A%2F%2Fjoop.hox.net%2Fpublist%2Fsemfamre.pdf&ei=mI-iU8ugIMT-8QXP0IGoBA&usg=AFQjCNHeXlfEBCPi3VNUXpjkcXxaAAeEBA&bvm=bv.69411363,d.dGI>
- Hu, L., & Bentler, P. M. (1999). Cutoff criteria for fit indexes in covariance structure analysis: Conventional criteria versus new alternatives. *Structural Equation Modeling, 6*, 1-55. doi:10.1080/10705519909540118
- Hustad, J. T. P., Pearson, M. R., Neighbors, C., & Borsari, B. (2014). The Role of Alcohol Perceptions as Mediators Between Personality and Alcohol-Related Outcomes Among

Incoming College-Student Drinkers. *Psychology of Addictive Behaviors*. Advance online publication. doi:10.1037/a0033785

Hyde, L. W., Shaw, D. S., & Moilanen, K. L. (2010). Developmental precursors of moral disengagement and the role of moral disengagement in the development of antisocial behavior. *Journal of Abnormal Child Psychology*, *38*, 197-209. doi:10.1007/s10802-009-9358-5

Hymel, S., Rocke-Henderson, N., & Bonanno, R. A. (2005). Moral disengagement: A framework for understanding bullying among adolescents. *Journal of Social Sciences*, *8*, 1-11.

Hymel, S., Schonert-Reichl, K. A., Bonanno, R. A., Vaillancourt, T., & Henderson, N. R. (2010). Bullying and morality: Understanding how good kids can behave badly. In S. R. Jimerson, S. M. Swearer, & D. L. Espelage, (Eds.), *Handbook of bullying in schools: An international perspective* (pp. 101-118). New York: Routledge/Taylor & Francis Group.

Institute for Health Metrics and Evaluation (2013). *The Global Burden of Disease: Generating Evidence, Guiding Policy*. Retrieved from <http://www.healthdata.org/policy-report/global-burden-disease-generating-evidence-guiding-policy>

International Center for Alcohol Policies (2014). Minimum age limits worldwide. Retrieved from <http://www.icap.org/table/minimumagelimitsworldwide>

Jackson, K. (2013). Alcohol use during the transition from middle school to high school: National panel data on prevalence and moderators. *Developmental Psychology*, *49*, 2147-2158. doi:10.1037/a0031843

Jamison, J., & Myers, L. B. (2008). Peer-group and price influence students drinking along with planned behaviour. *Alcohol and Alcoholism*, *43*, 492-497. doi:10.1093/alcalc/agn033

Jernigan D (2001). *Global Status Report: Alcohol and Young People*. Retrieved from World

Health Organization website: http://www.who.int/substance_abuse/publications/alcohol/en/

- Jessor, R., & Jessor, S. L. (1977). *Problem behavior and psychosocial development*. New York: Academic Press.
- Jessor, R. (1991). Risk behavior in adolescence: A psychosocial framework for understanding and action. *Journal of Adolescent Health, 12*, 597-605. doi:10.1016/1054-139X(91)90007-K
- Johnston, L. D., O'Malley, P. M., Bachman, J. G., & Schulenberg, J. E. (2012). *Monitoring the Future national results on adolescent drug use: Overview of key findings, 2011*. Ann Arbor: Institute for Social Research, The University of Michigan.
- Jones, L., James, M., Jefferson, T., Lushey, C., Morleo, M., Stokes, E... Bellis, M. (2007). A review of the effectiveness and cost-effectiveness of interventions delivered in primary and secondary schools to prevent and/or reduce alcohol use by young people under 18 years old. *Alcohol and schools: review of effectiveness and cost-effectiveness. National Institute for Health and Care Excellence (NICE): Main Report (PHIAC 14.3a)*. Retrieved from <http://www.nice.org.uk/nicemedia/pdf/AlcoholSchoolsConsReview.pdf>
- Juvonen, J., Martino, S. C., Ellickson, P. L., & Longshore, D. (2007). "But others do it!": Do misperceptions of schoolmate alcohol and marijuana use predict subsequent drug use among young adolescents? *Journal of Applied Social Psychology, 37*, 740-758. doi:10.1111/j.1559-1816.2007.00183.x
- Kaplan, D. (2000). *Structural equation modeling: Foundations and extensions*. Thousand Oaks, CA: Sage.
- Kelley, S. S., Borawski, E. A., Flocke, S. A., & Keen, K. J. (2003). The role of sequential and concurrent sexual relationships in the risk of sexually transmitted diseases among adolescents. *Journal of Adolescent Health, 32*, 296-305. doi:10.1016/S1054-

139X(02)00710-3

- Kelly, K. J., Comello, M. L. G., & Hunn, L. C. P. (2002). Parent-child communication, perceived sanctions against drug use, and youth drug involvement. *Adolescence*, *37*, 775–787. Retrieved from <http://web.a.ebscohost.com/ehost/detail?sid=a8b28a92-4322-4a24-bec7-50e34c857578%40sessionmgr4002&vid=1&hid=4106&bdata=JnNpdGU9ZWwhvc3QtbGl2ZQ%3d%3d#db=aph&jid=ADO>
- Kelly, A. B., O’Flaherty, M., Toumbourou, J. W., Connon, J. P., Hemphill, S. A., & Catalano, R. F. (2011). Gender differences in the impact of families on alcohol use: A lagged longitudinal study of early adolescents. *Addiction*, *106*, 1427–1436. doi:10.1111/j.1360-0443.2011.03435.x
- Keyes, K. M., & Miech, R. (2013). Age, period, and cohort effects in heavy episodic drinking in the US from 1985 to 2009. *Drug and Alcohol Dependence*, *132*, 140-148. doi:10.1016/j.drugalcdep.2013.01.019
- Kiriakidis, S. P. (2008). Moral disengagement: Relation to delinquency and independence from indices of social dysfunction. *International Journal of Offender Therapy and Comparative Criminology*, *52*, 571-583. doi:10.1177/0306624X07309063
- Komro, K. A., Maldonado-Molina, M. M., Tobler, A. L., Bonds, J. R., & Muller, K. E. (2007). Effects of home access and availability of alcohol on young adolescents’ alcohol use. *Addiction*, *102*, 1597-1608. doi:10.1111/j.1360-0443.2007.01941.x
- Koning, I. M., Engels, R. C. M. E., Verdurmen, J. E. E., & Vollebergh, W. A. M. (2010). Alcohol-specific socialization practices and alcohol use in Dutch early adolescents. *Journal of Adolescence*, *33*, 93-100. doi:10.1016/j.adolescence.2009.05.003
- Koning, I. M., Vollebergh, W. A. M., Smit, F., Verdurmen, J. E. E., van den Eijnden, R. J. J. M., ter Bogt, T. F. M., . . . Engels, R. C. M. E. (2009). Preventing heavy alcohol use in adolescents (PAS): Cluster randomized trial of a parent and student intervention offered separately and simultaneously. *Addiction*, *104*, 1669–78. doi: 10.1111/j.1360

-0443.2009.02677.x_2677 1669.

- Krettenauer, T., & Johnston, M. (2011). Positively versus negatively charged moral emotion expectancies in adolescence: The role of situational context and the developing moral self. *British Journal of Developmental Psychology*, *29*, 475-488. doi:10.1348/026151010X508083
- Kristjansson, A. L., Sigfusdottir, I. D., James, J. E., Allegrante, J. P., & Helgason, A. R. (2010). Perceived parental reactions and peer respect as predictors of adolescent cigarette smoking and alcohol use. *Addictive Behaviors*, *35*, 256-259. doi:10.1016/j.addbeh.2009.10.002
- Kumar, R., O'Malley, P. M., Johnston, L. D., Schulenberg, J. E., & Bachman, J. G. (2002). Effects of school-level norms on student substance use. *Prevention Science*, *3*, 105-124. doi:10.1023/A:1015431300471
- Kuntsche, E., Kuendig, H., & Gmel, G. (2008). Alcohol outlet density, perceived availability and adolescent alcohol use: A multilevel structural equation model. *Journal of Epidemiology and Community Health*, *62*, 811-816. doi:10.1136/jech.2007.065367
- Kuntsche, E., Kuntsche, S., Knibbe, R., Simons-Morton, B., Farhat, T., Hublet, A., . . . Demetrovics, Z. (2011). Cultural and gender convergence in adolescent drunkenness: evidence from 23 European and North American countries. *Archives of Pediatrics and Adolescent Medicine*, *165*, 152-8. doi:10.1001/archpediatrics.2010.191
- Kuther, T. L., & Higgins-D'Alessandro, A. (2000). Bridging the gap between moral reasoning and adolescent engagement in risky behavior. *Journal of Adolescence*, *23*, 409-422. doi:10.1006/jado.2000.0328
- Kypri, K., Dean, J. I., & Stojanovski, E. (2007). Parent attitudes on the supply of alcohol to minors. *Drug and Alcohol Review*, *26*, 41-47. doi:10.1080/09595230601037018
- Kypri, K., McCambridge, J., Vater, T., Bowe, S. J., Saunders, J. B., Cunningham, J. A., Horton, N. J. (2013). Web-based alcohol intervention for Maori university students:

Double-blind, multi-site randomized controlled trial. *Addiction*, 108, 331-338.

Retrieved from <http://web.a.ebscohost.com.simsrad.net.ocs.mq.edu.au/ehost/detail?sid=5701debe-2521-4cbf-9cfce87b26a1531%40sessionmgr4004&vid=1&hid=4204&bdata=JnNpdGU9ZWwhvc3QtbGl2ZQ%3d%3d#db=aph&jid=AIO>

Laflin, M. T., Moore-Hirschl, S., Weis, D. L., & Hayes, B. E. (1994). Use of the theory of reasoned action to predict drug and alcohol use. *International Journal of the Addictions*, 29, 927-940. Retrieved from <http://informahealthcare.com/loi/sum>

Lamb, M. E. (2000). The history of research on father involvement: An overview. *Marriage and Family Review*, 29, 23-42. doi:10.1300/J002v29n02_03

Landis, J. R., & Koch, G. G. (1977). The measurement of observer agreement for categorical data. *Biometrics*, 33, 159–174. Retrieved from <http://www.jstor.org/action/showPublication?journalCode=biometrics>

Larimer, M. E., Turner, A. P., Mallett, K. A., Geisner, I M. (2004). Predicting drinking behavior and alcohol-related problems among fraternity and sorority members: Examining the role of descriptive and injunctive norms. *Psychology of Addictive Behaviors*, 18, 203-212. doi:10.1037/0893-164X.18.3.203

Laslett, A., Catalano, P., Chikritzhs, Y., Dale, C., Doran, C., Ferris, J., . . . Wilkinson, C. (2010). *The Range and Magnitude of Alcohol's Harm to Others*. Retrieved from the, Turning Point Alcohol and Drug Centre website: <http://www.turningpoint.org.au/>

Lemstra, M., Bennett, N., Nannapaneni, U., Neudorf, C., Warren, L., Kershaw, T., & Scott, C. (2010). A systematic review of school-based marijuana and alcohol prevention programs targeting adolescents aged 10-15. *Addiction Research & Theory*, 18, 84-96. doi:10.3109 /16066350802673224

Li, F., Duncan, T. E., Mcauley, E., Harmer, P., & Smolkowski, K. (2000). A Didactic example of latent curve analysis applicable to the study of aging. *Journal of Aging and Health*, 12, 388-425. doi:10.1177/089826430001200306

- Li, F., Duncan, T. E., Duncan, S. C., & Hops, H. (2001). Piecewise growth mixture modeling of adolescent alcohol use data. *Structural Equation Modeling, 8*, 175–204.
doi:10.1207/S15328007SEM0802_2
- Li, C., Pentz, M. A., & Chou, C. (2002). Parental substance use as a modifier of adolescent substance use risk. *Addiction, 97*, 1537-1550. doi:10.1046/j.1360-0443.2002.00238.x
- Light, J. M., Greenan, C. C., Rusby, J. C., Nies, K. M., & Snijders, T. A. B. (2013). Onset to first alcohol use in early adolescence: A network diffusion model. *Journal of Research on Adolescence, 23*, 487-499. doi:10.1111/jora.12064
- Lim, S. S., Vos, T., Flaxman, A. D., Danaei, G., Shibuya, K., Adair-Rohani, H., . . . Ezzati, M. (2012). A comparative risk assessment of burden of disease and injury attributable to 67 risk factors and risk factor clusters in 21 regions, 1990–2010: a systematic analysis for the Global Burden of Disease Study 2010. *Lancet, 380*, 2224–60.
doi:10.1016/S0140-6736(12)61766-8.
- Linkenbach, J., Perkins, H. W., & DeJong, W. (2003). Parents' perceptions of parenting norms: Using the social norms approach to reinforce effective parenting. In H. W. Perkins (Ed.), *The social norms approach to preventing school and college age substance abuse: A handbook for educators, counselors, clinicians* (pp. 247-258). San Francisco: Jossey-Bass.
- Lintonen, T. P., & Konu, A. I. (2004). The misperceived social norm of drunkenness among early adolescents in Finland. *Health Education Research, 19*, 64-70. doi:10.1093/her/cyg010
- Lipperman-Kreda, S., Grube, J. W., & Paschall, M. J. (2010). Community norms and enforcement of minimum legal drinking age laws, personal beliefs and underage drinking: An explanatory model. *Journal of Community Health, 35*, 249-257.
doi:10.1007%2Fs10900-010-9229-6
- Little, K., Hawkins, M. T., Sanson, A., O'Connor, M., Toumbourou, J. W., Smart, D., &

- Vassallo, S. (2013). Longitudinal predictors of alcohol-related harms during the transition to adulthood. *Australian Psychologist, 48*, 270-280. doi:10.1111/j.1742-9544.2012.00095.x
- Livingston, J. A., Testa, M., Hoffman, J. H., & Windle, M. (2010). Can parents prevent heavy episodic drinking by allowing teens to drink at home? *Addictive Behaviors, 35*, 1105–1112. doi:10.1016/j.addbeh.2010.08.005
- Lucidi, F., Zelli, A., Mallia, L., Grano, C., Russo, P. M., & Violani, C. (2008). The social-cognitive mechanisms regulating adolescents' use of doping substances. *Journal of Sports Science, 26*, 447-456. doi:10.1080/02640410701579370
- Luk, J. W., Farhat, T., Iannotti, R. J., & Simons-Morton, B. G. (2010). Parent-child communication and substance use among adolescents: Do father and mother communication play a different role for sons and daughters? *Addictive Behaviors, 35*, 426-431. doi:10.1016/j.addbeh.2009.12.009
- Lynskey, M. T., Agrawal, A., & Heath, A. C. (2010). Genetically informative research on adolescent substance use: Methods, findings, and challenges. *Journal of the American Academy of Child & Adolescent Psychiatry, 49*, 1202-1214. doi:10.1016/j.jaac.2010.09.004
- Maas, C. J. M., & Hox, J. J. (2005). Sufficient sample sizes for multilevel modeling. *Methodology: European Journal of Research Methods for the Behavioral and Social Sciences, 1*, 86–92. doi:10.1027/1614-2241.1.3.86
- Mackie, C. J., Conrod, P. J., Rijdsdijk, F., & Eley, T. C. (2011). A systematic evaluation and validation of subtypes of adolescent alcohol use motives: Genetic and environmental contributions. *Alcoholism: Clinical and Experimental Research, 35*, 420-430. doi:10.1111/j.1530-0277.2010.01359.x
- MacKinnon, D. P., Fritz, M. S., Williams, J., & Lockwood, C. M. (2007). Distribution of the product confidence limits for the indirect effect: Program PRODCLIN. *Behavior*

Research Methods, 39, 384-389. doi:10.3758/BF03193007

- MacKinnon, D. P., Lockwood, C. M., Hoffman, J. M., West, S. G., & Sheets, V. (2002). A comparison of methods to test mediation and other intervening variable effects. *Psychological Methods*, 7, 83-104. doi:10.1037//1082-989X.7.1.83
- Manning, M., Smith, C., & Mazerolle, P. (2013). The societal costs of alcohol misuse in Australia. *Trends and Issues in Crime and Criminal Justice*, 454, 1-6. Retrieved from <http://www.aic.gov.au/publications/current%20series/tandi/441-460/tandi454.html>
- Mares, S. H. W., Lichtwarck-Aschoff, A., Burk, W. J., Van der Vorst, H., & Engels, R. C. M. E. (2012). Parental alcohol-specific rules and alcohol use from early adolescence to young adulthood. *Journal of Child Psychology and Psychiatry*, 53, 798-805. doi:10.1111/j.1469-7610.2012.02533.x
- Mares, S. H., Van Der Vorst, H., Engels, R. C., & Lichtwarck-Aschoff, A. (2011). Parental alcohol use, alcohol-related problems, and alcohol-specific attitudes, alcohol-specific communication, and adolescent excessive alcohol use and alcohol-related problems: An indirect path model. *Addictive Behaviors*, 36, 209–216. doi:10.1016/j.addbeh.2010.10.013
- Martino, S. C., Ellickson, P. L., & McCaffrey D. F. (2009). Multiple trajectories of peer and parental influence and their association with the development of adolescent heavy drinking. *Addictive Behaviors*, 34, 693–700. doi:10.1016/j.addbeh.2009.04.006
- Mason, W. A., Hitch, J. E., Kosterman, R., McCarty, C. A., Herrenkohl, T. I., & Hawkins, J. D. (2010). Growth in adolescent delinquency and alcohol use in relation to young adult crime, alcohol use disorders, and risky sex: A comparison of youth from low-versus middle-income backgrounds. *Journal of Child Psychology and Psychiatry*, 51, 1377-1385. doi:10.1111/j.1469-7610.2010.02292.x
- Mason, W. A., Toumbourou, J. W., Herrenkohl, T. I., Hemphill, S. A., Catalano, R. F., & Patton, G. C. (2011). Early age alcohol use and later alcohol problems in adolescents:

Individual and peer mediators in a bi-national study. *Psychology of Addictive Behaviors*, 25, 625-633. doi:10.1037/a0023320

Masten, A. S., Faden, V. B., Zucker, R. A., & Spear L. P. (2008). Underage drinking: A developmental framework. *Pediatrics*, 121, 235–251. doi:10.1542/peds.2007-2243A

Mattern, J. L., & Neighbors, C. (2004). Social norms campaigns: Examining the relationship between changes in perceived norms and changes in drinking levels. *Journal of Studies on Alcohol*, 65, 489-493. Retrieved from <http://go.galegroup.com.simsrad.net.ocs.mq.edu.au/ps/i.do?issn=0096-882X&v=2.1&u=macquarie&it=Jlourl&p=EAIM&sw=w>

Maxwell, K. A. (2002). Friends: The role of peer influence across adolescent risk behaviors. *Journal of Youth and Adolescence*, 31, 267–277. doi:10.1023/A:1015493316865

McAdams, T., Rowe, R., Rijdsdijk, F., Maughan, B., & Eley, T. C. (2012). The covariation of antisocial behavior and substance use in adolescence: A behavioral genetic perspective. *Journal of Research on Adolescence*, 22, 100-112. doi:10.1111/j.1532-7795.2011.00758.x

McArdle, J. J. (1988) Dynamic but structural equation modeling of repeated measures data. In R. B. Cattell & J. Nesselroade (Eds.), *Handbook of multivariate experimental psychology* (2nd ed., pp. 561-614). New York: Plenum Press.

McAlaney, J., Bewick, B., & Hughes, C. (2011). The international development of the ‘Social Norms’ approach to drug education and prevention. *Drugs: Education, Prevention and Policy*, 18, 81-89. doi:10.3109/09687631003610977

McAtamney, A., & Morgan, A. (2009). Key issues in antisocial behaviour. *Research in Practice no. 5*. Retrieved from Australian Institute of Criminology website: <http://www.aic.gov.au/>

McBride, N., Farrington, F., Meuleners, L., & Midford, R. (2006). *School health and alcohol harm reduction project: Details of intervention development and research procedures*.

Perth, WA: National Drug Research Institute, Curtin University of Technology.

McBride, N., Farrington, F., Midford, R., Meuleners, L., & Phillips, M. (2004). Harm minimisation in school drug education: final results of the School Health and Alcohol Harm Reduction Project (SHAHRP). *Addiction*, *99*, 278-291. doi:10.1046/j.1360-0443.2003.00620.x

McGillicuddy, N. B., Rychtarik, R. G., Morsheimer, E. T., & Burke-Storer, M. R. (2007). Agreement between parent and adolescent reports of adolescent substance use. *Journal of Child & Adolescent Substance Abuse*, *16*, 59-78. doi:10.1300 /J029v16n04_04

McKay, M. T., Sumnall, H., Goudie, A. J., Field, M., & Cole, J. C. (2011). What differentiates adolescent problematic drinkers from their peers? Results from a cross-sectional study in Northern Irish school children. *Drugs: education, prevention and policy*, *18*, 187-199. doi:10.3109/09687637.2010.502160

McMorris, B. J., Catalano, R. F., Kim, M. J., Toumbourou, J. W., Hemphill, S. A., (2011). Influence of family factors and supervised alcohol use on adolescent alcohol use and harms: similarities between youth in different alcohol policy contexts. *Journal of Studies on Alcohol and Drugs*, *72*, 418-428. Retrieved from <http://go.galegroup.com/ps/i.do?issn=1937-1888&v=2.1&u=macquarie&it=Jlourl&p=EAIM&sw=w>

Meredith, W., & Tisak, J. (1990). Latent curve analysis. *Psychometrika*, *55*, 107-122. doi:10.1007/BF02294746

Merton, R. K. (1957). *Social theory and social structure*. New York: Free Press.

Ministerial Council on Drug Strategy (MCDS, 2006). *National alcohol strategy 2006–2011*. Retrieved from <http://www.alcohol.gov.au/internet/alcohol/publishing.nsf/>

Morgado, A. M., & Vale-Dias, M. L. (2013). The antisocial phenomenon in adolescence: What is literature telling us? *Aggression and Violent Behavior*, *18*, 436-443. doi:10.1016/j.avb.2013.05.004

- Morrison, D. M., Mar, C. M., Wells, E. A., Rogers, G. M., Hoppe, M. J., Wilsdon, A., ...Archibald, M. E. (2002). The theory of reasoned action as a model of children's health behavior. *Journal of Applied Social Psychology, 32*, 2266-2295. doi:10.1111/j.1559-1816.2002.tb01863.x
- Mrug, S., & McCay, R. (2013). Parental and peer disapproval of alcohol use and its relationship to adolescent drinking: Age, gender, and racial differences. *Psychology of Addictive Behaviors, 27*, 604-614. doi:10.1037/a0031064
- Muller, S. & Kuntsche, E. (2011). Do the drinking motives of adolescents mediate the link between their parents' drinking habits and their own alcohol use? *Journal of Studies on Alcohol and Drugs, 72*, 429-437. Retrieved from <http://go.galegroup.com/ps/i.do?issn=1937-1888&v=2.1&u=macquarie&it=Jlourl&p=EAIM&sw=w>
- Musher-Eizenman, D. R., Holub, S. C., & Arnett, M. (2003). Attitude and peer influences on adolescent substance use: The moderating effect of age, sex, and substance. *Journal of Drug Education, 33*, 1-23. doi:10.2190/YED0-BQA8-5RVX-95JB
- Nash, S. G., McQueen, A., & Bray, J. H. (2005). Pathways to adolescent alcohol use: family environment, peer influence and parental expectations. *Journal of Adolescent Health, 37*, 19-28. doi:10.1016/j.jadohealth.2004.06.004
- National Health and Medical Research Council. (NHMRC, 2009). *Australian guidelines to reduce health risks from drinking alcohol*. Retrieved from http://www.nhmrc.gov.au/_files_nhmrc/
- National Institute of Alcohol Abuse and Alcoholism (NIAAA, 2004). NIAAA council approves definition of binge drinking. *NIAAA Newsletter*, No. 3, 3. Retrieved from http://www.niaaa.nih.gov/sites/default/files/newsletters/Newsletter_Number3.pdf
- National Institute of Alcohol Abuse and Alcoholism (NIAAA, 2004/2005). Alcohol and development in youth: A multidisciplinary overview. *Alcohol Research & Health, 28*, 104-176. Retrieved from <http://pubs.niaaa.nih.gov/publications/arh283/toc28-3.htm>

- Neighbors, C., Lee, C. M., Lewis, M. A., Fossos, N., & Larimer, M. E. (2007). Are social norms the best predictor of outcomes among heavy-drinking college students? *Journal of Studies on Alcohol and Drugs*, 68, 556-565. Retrieved from <http://go.galegroup.com/ps/i.do?issn=1937-1888&v=2.1&u=macquarie&it=Jlourl&p=EAIM&sw=w>
- Nelson, B. V., Patience, T. H., & MacDonald, D. C. (1999). Adolescent Risk Behavior and the Influence of Parents and Education. *Journal of the American Board of Family Medicine*, 12, 436-443. doi:10.3122/jabfm.12.6.436
- Newton, N. C., Barrett, E. L., Swaffield, L., & Teesson, M. (2014). Risky cognitions associated with adolescent alcohol misuse: Moral disengagement, alcohol expectancies and perceived self-regulatory efficacy. *Addictive Behaviors*, 39, 165-172. doi:10.1016/j.addbeh.2013.09.030
- Newton, N. C., Havard, A., & Teesson, M. (2012). The association between moral disengagement, psychological distress, resistive self-regulatory efficacy and alcohol and cannabis use among adolescents in Sydney, Australia. *Addiction Research and Theory*, 20, 261-269. doi:10.3109/16066359.2011.614976
- Newton, C., Vogel, L. E., Teesson, M., & Andrews, G. (2009). CLIMATE Schools: alcohol module: cross-validation of a school-based prevention programme for alcohol misuse. *Australian and New Zealand Journal of Psychiatry*, 43, 201-207. doi:10.1080/00048670802653364
- Nucci, L., Guerra, N., & Lee, J. (1991). Adolescent judgments of the personal, prudential, and normative aspects of drug usage. *Developmental Psychology*, 27, 841-848. doi:10.1037/0012-1649.27.5.841
- O'Callaghan, F. V., Chant, D. C., Callan, V. J., & Baglioni, A. (1997). Models of alcohol use by young adults: An examination of various attitude-behavior theories. *Journal of Studies on Alcohol*, 58, 502-507.
- Paciello, M., Fida, R., Tramontano, C., Lupinet, C., & Caprara, G. V. (2008). Stability and

change of moral disengagement and its impact on aggression and violence in late adolescence. *Child Development*, 79, 1288-1309. doi:10.1111/j.1467-8624.2008.01189.x

Passini, S. (2012). The delinquency-drug relationship: The influence of social reputation and moral disengagement. *Addictive Behaviors*, 37, 577-579. doi:10.1016/j.addbeh.2012.01.012

Patrick, M. E., Schulenberg, J. E., O'Malley, P. M., Johnston, L. D., & Bachman, J. G. (2011). Adolescents' reported reasons for alcohol and marijuana use as predictors of substance use and problems in adulthood. *Journal of Studies on Alcohol and Drugs*, 72, 106-116. Retrieved from <http://go.galegroup.com/ps/i.do?issn=1937-1888&v=2.1&u=macquarie&it=Jlourl&p=EAIM&sw=w>

Pelton, J., Gound, M., Forehand, R., & Brody, G. (2004). The moral disengagement scale: Extension with an American minority sample. *Journal of Psychopathology and Behavioral Assessment*, 26, 31-39. doi:10.1023/B:JOBA.0000007454.34707.a5

Percy, A. (2008). Moderate adolescent drug use and the development of substance use self-regulation. *International Journal of Behavioral Development*, 32, 451-458. doi:10.1177/0165025408093664

Perkins, H. W. (2003). The emergence and evolution of the social norms approach to substance abuse prevention. In H. W. Perkins (Ed.), *The social norms approach to preventing school and college age substance abuse: A handbook for educators, counselors, clinicians* (pp. 3-18). San Francisco: Jossey-Bass.

Perkins, H. W. (1997). College student misperceptions of alcohol and other drug norms among peers: Exploring causes, consequences, and implications for prevention programs. In *Designing alcohol and other drug prevention programs in higher education: Bringing theory into practice* (pp. 177-206). Newton, MA: The Higher Education Center for Alcohol and Other Drug Prevention, U.S. Department of

Education.

- Perkins, H. W., & Berkowitz, A. D. (1986). Perceiving the community norms of alcohol use among students: Some research implications for campus alcohol education programming. *International Journal of the Addictions, 21*, 961-976. Retrieved from <http://informahealthcare.com/loi/sum>
- Petratis, J., Flay, B. R., & Miller, T. (1995). Reviewing theories of adolescent substance use: Organizing pieces in the puzzle. *Psychological Bulletin, 117*, 67-86. doi:10.1037/0033-2909.117.1.67
- Pettersson, C., Linden-Boström, M., & Eriksson, C. (2009). Parental attitudes and behaviour concerning adolescent alcohol consumption: Do sociodemographic factors matter? *Scandinavian Journal of Public Health, 37*, 509-517. doi:10.1177/1403494809105790
- Pirkis, J. E., Irwin, C. E., Brindis, C., Patton, G., & Sawyer, M. G. (2003). Adolescent substance use: Beware of international comparisons. *Journal of Adolescent Health, 33*, 279-286. doi:10.1016/S1054-139X(03)00209-X
- Pitkänen, T., Kokko, K., Lyyra, A., & Pulkkinen, L. (2008). A developmental approach to alcohol drinking behaviour in adulthood: A follow-up study from age 8 to age 42. *Addiction, 103* (Suppl. 1), 48-68. doi:10.1111/j.1360-0443.2008.02176.x
- Preacher, K. J., Curran, P. J., & Bauer, D. J. (2006). Computational tools for probing interactions in multiple linear regression, multilevel modeling, and latent curve analysis. *Journal of Educational and Behavioral Statistics, 31*, 437-448. doi:10.3102/10769986031004437
- Preacher, K. J., & Hayes, A. F. (2004). SPSS and SAS procedures for estimating indirect effects in simple mediation models. *Behavior Research Methods, Instruments, & Computers, 36*, 717-731. doi:10.3758/BF03206553
- Preacher, K. J., & Hayes, A. F. (2008). Asymptotic and resampling strategies for assessing and comparing indirect effects in multiple mediator models. *Behavior Research*

Methods, 40, 879-891. doi:10.3758/BRM.40.3.879

- Preacher, K. J., Rucker, D. D., & Hayes, A. F. (2007). Addressing moderated mediation hypotheses: Theory, methods, and prescriptions. *Multivariate Behavioral Research*, 42, 185–227. doi:10.1080/00273170701341316
- Prins, J. C., Donovan, J. E., & Molina, B. S. G. (2011). Parent-child divergence in the development of alcohol use norms from middle childhood into middle adolescence. *Journal of Studies on Alcohol and Drugs*, 72, 438-443. Retrieved from <http://go.galegroup.com/ps/i.do?issn=1937-1888&v=2.1&u=macquarie&it=Jlourl&p=EAIM&sw=w>
- Quiles, Z. N., Kinnunen, T., & Bybee, J. (2002). Aspects of guilt and self-reported substance use in adolescence. *Journal of Drug Education*, 32, 343-362. doi:10.2190/VN3D-5M0A-47BN-3Y3T
- Quinn, C., & Bussey, K. (2012). [Qualitative anticipated social outcome responses in an underage drinking context]. *Unpublished raw data*.
- Quinn, C. A., & Bussey, K. (2014a). *Adolescents' anticipated social outcomes from mothers, fathers, and peers for drinking alcohol and being drunk*. Manuscript submitted for publication.
- Quinn, C. A., & Bussey, K. (2014b). *The role of moral disengagement in underage drinking and alcohol-related harm*. Manuscript submitted for publication.
- Reboussin, B. A., Song, E., Shrestha, A., Lohman, K. K., & Wolfson, M. (2006). A latent class analysis of underage problem drinking: Evidence from a community sample of 16–20 year olds. *Drug and Alcohol Dependence*, 83, 199–209. doi:10.1016/j.drugalcdep.2005.11.013
- Rehm, J., Mathers, C., Popova, S., Thavorncharoensap, M., Teerawattananon, Y., & Patra, J. (2009). Global burden of disease and injury and economic cost attributable to alcohol use and alcohol-use disorders. *Lancet*, 373, 2223–33. doi:10.1016/S0140-6736(09)

60746-7.

- Reifman, A., Barnes, G. M., Dintcheff, B. A., Farrell, M. P., & Uhteg, L. (1998). Parental and peer influences on the onset of heavier drinking among adolescents. *Journal of Studies on Alcohol, 59*, 311-317.
- Reyna, V. F., Croom, K., Staiano-Coico, L., Lesser, M. L., Lewis, D., Frank, J., & Marchell, T. C. (2013). Endorsement of a personal responsibility to adhere to the minimum drinking age law predicts consumption, risky behaviors, and alcohol-related harms. *Psychology, Public Policy and Law, 19*, 380-394. doi:10.1037/a0032538.
- Rhee, S. H., Hewitt, J. K., Young, S. E., Corley, R. P., Crowley, T. J., & Stallings, M. C. (2003). Genetic and environmental influences on substance initiation, use, and problem use in adolescents. *Archives of General Psychiatry, 60*, 1256–1264. doi:10.1001/archpsyc.60.12.1256
- Riper, H., van Straten, A., Keuken, M., Smit, F., Schippers, G., Cuijpers, P. (2009). Curbing problem drinking with personalized-feedback interventions: A meta-analysis. *American Journal of Preventive Medicine, 36*, 247-255. doi:10.1016/j.amepre.2008.10.016
- Roche, A. M., Steenson, T., & Andrew, R. (2013). Alcohol and young people: What the legislation says about access and secondary supply. *Drug and Alcohol Review, 32*, 124–132. doi:10.1111/dar.12017
- Roek, M. A. E., Spijkerman, R., Poelen, E. A. P., Lemmers, L., & Engels, R. C. M. E. (2010). The unique contribution of attitudes toward non-alcoholic drinks to the prediction of adolescents' and young adults' alcohol consumption. *Addictive Behaviors, 35*, 651-654. doi:10.1016/j.addbeh.2010.02.007
- Rotter, J. B. (1954). *Social learning and clinical psychology*. Englewood Cliffs, NJ: Prentice-Hall.
- Ryan, S. M., Jorm, A. F., & Lubman, D. I. (2010). Parenting factors associated with reduced

adolescent alcohol use: A systematic review of longitudinal studies. *Australian and New Zealand Journal of Psychiatry*, *44*, 774-783. doi:10.1080/00048674.2010.501759

Samek, D. R., Keyes, M. A., Iacono, W. G., & McGue, M. (2013). Peer deviance, alcohol expectancies, and adolescent alcohol use: Explaining shared and nonshared environmental effects using an adoptive sibling pair design. *Behavior Genetics*, *43*, 286-296. doi:10.1007/s10519-013-9595-9

Sargent, M. (1973). *Alcoholism as a social problem*. Queensland: University of Queensland Press.

Schafer, J., & Graham, J. (2002). Missing data: Our view of the state of the art. *Psychological Methods*, *7*, 147-177. doi:10.1037//1082-989X.7.2.147

Schlegel, R. P., Crawford, C. A., & Sanborn, M. D. (1977). Correspondence and mediational properties of the Fishbein model: An application to adolescent alcohol use. *Journal of Experimental Social Psychology*, *13*, 421-430. doi:10.1016/0022-1031(77)90027-0

Schlegel, R. P., d'Avernas, J. R., Zanna, M. P., DeCourville, N. H., & Manske, S. R. (1992). Problem drinking: A problem for the Theory of Reasoned Action? *Journal of Applied Social Psychology*, *22*, 358-385. doi:10.1111/j.1559-1816.1992.tb01545.x

Schlegel, R. P., d'Avernas, J. R., Zanna, M., DiTecco, D., & Manske, S. R. (1987). Predicting alcohol use in young adult males: A comparison of the Fishbein-Ajzen model and Jessor's Problem Behavior Theory. *Drugs & Society*, *1*, 7-24. doi:10.1300/J023v01n04_02

Segrist, D. J., Corcoran, K. J., Jordan-Fleming, M. K., & Rose, P. (2007). Yeah, I drink...but not as much as other guys: The majority fallacy among male adolescents. *North American Journal of Psychology*, *9*, 307-320. Retrieved from <http://web.a.ebscohost.com/ehost/detail?sid=72eeb801-394f-4c3a-8013-766eaf72931a%40sessionmgr4003&vid=1&hid=4106&bdata=JnNpdGU9ZWWhvc3QtbGl2ZQ%3d%3d#db=aph&jid=6PK>

- Sharma, M., & Kanekar, A. (2007). Theory of reasoned action & theory of planned behavior in alcohol and drug education. *Journal of Alcohol and Drug Education, 51*, 3-7. Retrieved from <http://web.a.ebscohost.com/ehost/detail?sid=9e4ef26e-9895-41aa-ac12-fa7208cc4770%40sessionmgr4004&vid=1&hid=4106&bdata=JnNpdGU9ZWwhvc3QtbGl2ZQ%3d%3d#db=pbh&jid=ADE>
- Shamblen, S. R., Ringwalt, C. L., Clark, H. K., & Hanley, S. M. (2014). Alcohol use growth trajectories in young adolescence: Pathways and predictors. *Journal of Child & Adolescent Substance Abuse, 23*, 9-18. doi:10.1080/1067828X.2012.747906
- Shin, S. H., Miller, D. P., & Teicher, M. H. (2013). Exposure to childhood neglect and physical abuse and developmental trajectories of heavy episodic drinking from early adolescence into young adulthood. *Drug and Alcohol Dependence, 127*, 31-38. doi:10.1016/j.drugalcdep.2012.06.005
- Simons-Morton, B. (2004). Prospective association of peer influence, school engagement, drinking expectancies, and parental expectations with drinking initiation among sixth graders. *Addictive Behaviors, 29*, 299-309. doi:10.1016/j.addbeh.2003.08.005
- Smart, D., Vassallo, S., Sanson, A., Richardson, N., Dussuyer, I., McKendry, W.,... Oberklaid, F. (2003). *Patterns and precursors of adolescent antisocial behaviour: Types, resiliency and environmental influences (Second report)*. Melbourne, Victoria: Crime Prevention Victoria.
- Smart, D., Toumbourou, J. W., Sanson, A., & Little, K. (2013). Mid/late adolescence. In S. Vassallo & A. Sanson (Eds.), *The Australian Temperament Project: The first 30 years* (pp. 10-12). Retrieved from Australian Institute of Family Studies website: <http://www.aifs.org.au/>
- Smith, A. M. A., & Rosenthal, D. A. (1995). Adolescents' perceptions of their risk environment. *Journal of Adolescence, 18*, 229-245. doi:10.1006/jado.1995.1016
- Song, E-Y., Smiler, A. P., Wagoner, K. G., & Wolfson, M. (2012). Everyone says it's ok:

Adolescents' perceptions of peer, parent, and community alcohol norms, alcohol consumption, and alcohol-related consequences. *Substance Use & Misuse*, 47, 86-98. doi:10.3109/10826084.2011.629704

Spijkerman, R., Van den Eijnden, R. J. J. M., Overbeek, G., & Engels, R. C. M. E. (2007).

The impact of peer and parental norms and behavior on adolescent drinking: the role of drinker prototypes. *Psychology and Health*, 22, 7 – 29. doi:10.1080/14768320500537688

Spoth, R., Greenberg, M., & Turrisi, R. (2008). Preventive interventions addressing underage drinking: state of the evidence and steps toward public health impact. *Pediatrics*, 121, S311-S266. doi:10.1542/peds.2007-2243E

Spoth, R. L., Randall, G. K., Trudeau, L., Shin, C., & Redmond, C. (2008). Substance use outcomes 5 1/2 years past baseline for partnership-based, family-school preventive interventions. *Drug Alcohol Dependence*, 96, 57-68. doi:10.1016/j.drugalcdep.2008.01.023

Spoth, R. L., Redmond, C., Shin, C. (2001). Randomized trial of brief family interventions for general populations: Adolescent substance use outcomes 4 years following baseline. *Journal of Consulting and Clinical Psychology*, 69, 1–15. doi:10.1037/0022-006X.69.4.627

Stafström, M. (2007). Kick back and destroy the ride: alcohol-related violence and associations with drinking patterns and delinquency in adolescence. *Substance Abuse Treatment, Prevention, and Policy*, 2, 1-9. doi:10.1186/1747-597X-2-18

Stanger, N., Kavussanu, M., Boardley, I. D., & Ring, C. (2013). The influence of moral disengagement and negative emotion on antisocial sport behaviour. *Sport, Exercise, and Performance Psychology*, 2, 117-129. doi:10.1037/a0030585

Stautz, K., & Cooper, A. (2013). Impulsivity-related personality traits and adolescent alcohol use: A meta-analytic review. *Clinical Psychology Review*, 33, 574-592.

doi:10.1016/j.cpr.2013.03.003

- Stein, L. A. R., Katz, B., Colby, S. M., Barnett, N. P., Golembeske, C., Lebeau-Craven, R., & Monti, P. M. (2007). Validity and reliability of the Alcohol Expectancy Questionnaire-Adolescent, Brief. *Journal of Child & Adolescent Substance Abuse, 16*, 115-127. doi:10.1300/J029v16n02_06
- Stice, E., Barrera, M., & Chassin, L. (1998). Prospective differential prediction of adolescent alcohol use and problem use: Examining the mechanisms of effect. *Journal of Abnormal Psychology, 107*, 616-628. doi:10.1037/0021-843X.107.4.616
- Stronach, B. (2003). *Enough is Enough*. Melbourne: Australian Drug Info Clearinghouse Newsletter.
- Substance Abuse and Mental Health Services Administration (SAMHSA, 2010). *Results from the 2009 National Survey on Drug Use and Health: Volume I. Summary of National Findings* (NSDUH Series H-38A, HHS Publication No. SMA 10-458). Retrieved from <http://samhsa.gov/data/NSDUH/>
- Sutherland, I., & Shepherd, J. P. (2002). Adolescents' beliefs about future substance use: A comparison of current users and non-users of cigarettes, alcohol and illicit drugs. *Journal of Adolescence, 25*, 169-181. doi:10.1006/jado.2002.0459
- Teesson, M., Newton, N. C., & Barrett, E. L. (2012). Australian school-based prevention programs for alcohol and other drugs: A systematic review. *Drug and Alcohol Review, 31*, 731 – 736 doi:10.1111/j.1465-3362.2012.00420.x
- Toumbourou, J. W., Douglas Gregg, M. E., Shortt, A. L., Hutchinson, D. M., & Slaviero, T. M. (2013). Reduction of adolescent alcohol use through family-school intervention: A randomized trial. *Journal of Adolescent Health, 53*, 778-784. doi:10.1016/j.jadohealth.2013.07.005
- Toumbourou, J. W., Hemphill, S. A., McMorris, B. J., Catalano, R. F., & Patton, G. C. (2009). Alcohol use and related harms in school students in the USA and Australia.

Health Promotion International, 24, 373-382. doi:10.1093/heapro/dap037

- Trucco, E. M., Colder, C. R., & Wieczorek, W. F. (2011). Vulnerability to peer influence: A moderated mediation study of early adolescent alcohol use initiation. *Addictive Behaviors*, 36, 729-736. doi:10.1016/j.addbeh.2011.02.008
- Tucker, J. S., Ellickson, P. L., & Klein, D. J. (2008). Growing up in a permissive household: what deters at-risk adolescents from heavy drinking? *Journal of Studies on Alcohol and Drugs*, 69, 528-534. Retrieved from <http://go.galegroup.com/ps/i.do?issn=1937-1888&v=2.1&u=macquarie&it=Jlourl&p=EAIM&sw=w>
- Turrisi, R., Wiersma, K. A., & Hughes, K. K. (2000). Binge-drinking related consequences in college students: Role of drinking beliefs and mother-teen communications. *Psychology of Addictive Behaviors*, 14, 342–355. doi:10.1037/0893-164X.14.4.342
- Van Den Eijnden, R., Van De Mheen, D., Vet, R., & Vermulst, A. (2011). Alcohol-specific parenting and adolescents' alcohol-related problems: The interacting role of alcohol availability at home and parental rules. *Journal of Studies on Alcohol and Drugs*, 72, 408–417. Retrieved from <http://go.galegroup.com.simsrad.net.ocs.mq.edu.au/ps/i.do?issn=1937-1888&v=2.1&u=macquarie&it=Jlourl&p=EAIM&sw=w>
- Van Der Vorst, H., Burk, W. J., Engels, R. C. M. E. (2010). The role of parental alcohol-specific communication in early adolescents' alcohol use. *Drug and Alcohol Dependence*, 111, 183-190. doi:10.1016/j.drugalcdep.2010.03.023
- Van Der Vorst, H., Engels, R.C.M.E., Dekovic, M., Meeus, W., & Vermulst, A.A. (2007). Alcohol-specific rules, personality and adolescents' alcohol use: A longitudinal person environment study. *Addiction*, 102, 1064–1075. doi:10.1111/j.1360-0443.2007.01855.x
- Van Der Vorst, H., Engels, R. C., Meeus, W., & Deković, M. (2006). The impact of alcohol specific rules, parental norms about early drinking and parental alcohol use on adolescents' drinking behavior. *Journal of Child Psychology and Psychiatry*, 47,

1299-1306. doi:10.1111/j.1469-7610.2006.01680.x

- Van Der Vorst, H., Engels, R. C., Meeus, W., Deković, M., & Van Leeuwe, J. (2005). The role of alcohol-specific socialization in adolescents' drinking behaviour. *Addiction, 100*, 1464-1476. doi:10.1111/j.1360-0443.2005.01193.x
- Van der Vorst, H., Vermulst, A., Meeus, W., Dekovic, M., & Engels, R. C. M. E. (2009). Identification and prediction of drinking trajectories in early and mid-adolescence. *Journal of Clinical Child and Adolescent Psychology, 38*, 329-341. doi:10.1080/15374410902851648
- Van Zundert, R. M. P., Van Der Vorst, H., Vermulst, A. A., & Engels, R. C. M. E. (2006). Pathways to alcohol use among Dutch students in regular education and education for adolescents with behavioral problems: The role of parental alcohol use, general parenting practices, and alcohol-specific parenting practices. *Journal of Family Psychology, 20*, 456-467. doi:10.1037/0893-3200.20.3.456
- Vandenberg, R. J., & Lance, C. E. (2000). A review and synthesis of the measurement invariance literature: Suggestions, practices and recommendations for organizational research. *Organizational Research Methods, 3*, 4-70. doi:10.1177/109442810031002
- Vaughan, E. L., Corbin, W. R., & Fromme, K. (2009). Academic and social motives and drinking behavior. *Psychology of Addictive Behaviors, 23*, 564-576. doi:10.1037/a0017331
- Vogl, L., Teesson, M., Andrews, G., Bird, K., Steadman, B., & Dillon, P. (2009). A computerized harm minimization prevention program for alcohol misuse and related harms: Randomized controlled trial. *Addiction, 10*, 564-575. doi: 10.1111/j.1360-0443.2009.02510.x
- Von Eye, A., Bogat, G. A., & Rhodes, J. E. (2006). Variable-oriented and person-oriented perspectives of analysis: The example of alcohol consumption in adolescence. *Journal of Adolescence, 29*, 981-1004. doi:10.1016/j.adolescence.2006.06.007

- Vrieze, S. I., Vaidyanathan, U., Hicks, B. M., Iacono, W. G., & McGue, M. (2014). The role of constraint in the development of nicotine, marijuana, and alcohol dependence in young adulthood. *Behavior Genetics, 44*, 14-24. doi:10.1007/s10519-013-9629-3
- Wagenaar, A. C. & Toomey, T. L. (2002). Effects of minimum drinking age laws: review and analyses of the literature from 1960 to 2000. *Journal of studies on alcohol, Suppl. 14*, 206-225. Retrieved from <http://go.galegroup.com/ps/i.do?issn=1937-1888&v=2.1&u=macquarie&it=Jlourl&p=EAIM&sw=w>
- Wagenaar, A. C., Salois, M. J., & Komro, K. A. (2009). Effects of beverage alcohol price and tax levels on drinking: a meta-analysis of 1003 estimates from 112 studies. *Addiction, 104*, 179–90. doi:10.1111/j.1360-0443.2008.02438.x
- Ward, B., Snow, P., & Aroni, R. (2010). Children's alcohol initiation: an analytic overview. *Drugs Education Prevention & Policy, 17*, 1–8. doi:10.1080/09687630802590526
- Warner, L. A., White, H. R., & Johnson, V. (2007). Alcohol initiation experiences and family history of alcoholism as predictors of problem-drinking trajectories. *Journal of Studies on Alcohol, 68*, 56-65. Retrieved from <http://go.galegroup.com/ps/i.do?issn=1937-1888&v=2.1&u=macquarie&it=Jlourl&p=EAIM&sw=w>
- Watkins, J. A., Howard-Barr, E. M., Moore, M. J., & Werch, C. C. (2006). The mediating role of adolescent self-efficacy in the relationship between parental practices and adolescent alcohol use. *Journal of Adolescent Health, 38*, 448-450. doi:10.1016/j.jadohealth.2005.04.002
- Weichold, K., Wiesner, M. F., & Silbereisen, R. K. (2014). Childhood predictors and mid-adolescent correlates of developmental trajectories of alcohol use among male and female youth. *Journal of Youth and Adolescence, 43*, 698-716. doi:10.1007/s10964-013-0014-6
- Wells, J. E., Horwood, L. J., & Fergusso, D. M. (2004). Drinking patterns in mid-adolescence and psychosocial outcomes in late adolescence and early adulthood. *Addiction, 99*,

1529–1541. doi:10.1111/j.1360-0443.2004.00918.x

- White, V., & Bariola, E. (2012). *Australian secondary school students' use of tobacco, alcohol, and over-the-counter and illicit substances in 2011*. Retrieved from Drug Strategy Branch, Australian Government Department of Health and Ageing: <http://www.nationaldrugstrategy.gov.au>
- White, A., Kavanagh, D., Stallman, H., Klein, B., Kay-Lambkin, F., Proudfoot, J., . . . Young, R. (2010). Online alcohol interventions: A systematic review. *Journal of Medical Internet Research, 12*, 160-171. doi:10.2196/jmir.1479
- White, H. R., & Labouvie, E. W. (1989). Towards the assessment of adolescent problem drinking. *Journal of Studies on Alcohol, 50*, 30–37.
- Willem, L., Bijttebier, P., Claes, L., & Uytterhaegen, A. (2012). Temperament and problematic alcohol use in adolescence: An examination of drinking motives as mediators. *Journal of Psychopathology and Behavioral Assessment, 34*, 282-292. doi:10.1007/s10862-012-9279-4
- Wilhelmsen, B. U., Laberg, J. C., Klepp, K. I. (1994). Evaluation of two student and teacher involved alcohol prevention programmes. *Addiction, 89*, 1157–65. doi:10.1111/j.1360-0443.1994.tb02792.x
- Willner, P. (2001). A view through the gateway: Expectancies as a possible pathway from alcohol to cannabis. *Addiction, 96*, 691-703. doi:10.1080/09652140020039062
- Windle, M., & Windle, R. C. (2012). Testing the specificity between social anxiety disorder and drinking motives. *Addictive Behaviors, 37*, 1003-1008. doi:10.1016/j.addbeh.2012.04.009
- Wilsnack, R.W., Volgeltanz, N.D., Wilsnack, S.C., & Harris, T.R., (2000). Gender differences in alcohol consumption and adverse drinking consequences: cross-cultural patterns. *Addiction, 95*, 251–265. doi:10.1046/j.1360-0443.2000.95225112.x
- World Health Organization (WHO, 2004). *Global status report: Alcohol policy*. Retrieved

from http://www.who.int/substance_abuse/publications/alcohol/en/

World Health Organisation Expert Committee on Problems Related to Alcohol Consumption

(WHO, 2007). *Second Report of WHO Expert Committee on Problems Related to*

Alcohol Consumption (WHO Technical Report Series No. 944). Retrieved from

http://www.who.int/substance_abuse/expert_committee_alcohol_trs944.pdf

World Health Organization (WHO, 2011). *Global status report on alcohol and health.*

Retrieved from http://www.who.int/substance_abuse/publications/alcohol/en/

William, S. K., & Kelly, F. D. (2005). Relationships among involvement, attachment, and

behavioral problems in adolescence: Examining father's influence. *The Journal of*

Early Adolescence, 25, 168-196. doi:10.1177/0272431604274178

Wilsnack, R.W., Volgeltanz, N.D., Wilsnack, S.C., & Harris, T.R., (2000). Gender

differences in alcohol consumption and adverse drinking consequences: cross-cultural

patterns. *Addiction*, 95, 251–265. doi:10.1046/j.1360-0443.2000.95225112.x

Young, S. E., Rhee, S. H., Stallings, M. C., Corley, R. P., & Hewitt, J. K. (2006). Genetic and

environmental vulnerabilities underlying adolescent substance use and problem use:

General or specific? *Behavior Genetics*, 36, 603–615. doi:10.1007/s10519-006-9066-7

Young, R., Sweeting, H., & West, P. (2007). A longitudinal study of alcohol use and

antisocial behaviour in young people. *Alcohol & Alcoholism*, 43, 204-214.

Yu, J. (1998). Perceived parental/peer attitudes and alcohol-related behaviors: An analysis of

the impact of the drinking age law. *Substance Use & Misuse*, 33, 2687-2702.

doi:10.3109/10826089809059345

Yu, J. (2003). The association between parental alcohol-related behaviors and children's

drinking. *Drug and Alcohol Dependence*, 69, 253-262. doi:10.1016/S0376

-8716(02)00324-1

Zhang, L., Welte, J. W., & Wiczorek, W. F. (1999). The influence of parental drinking and

closeness on adolescent drinking. *Journal of Studies on Alcohol*, 60, 245–251.

Retrieved from <http://go.galegroup.com/ps/i.do?action=interpret&v=2.1&u=macquarie&it=Jlourl&issn=0096-882X&p=EAIM&sw=w&authCount=1>

- Zucker, R. A., Donovan, J. E., Masten, A. S., Mattson, M. E., & Moss, H. B. (2008). Early developmental processes and the continuity of risk for underage drinking and problem drinking. *Pediatrics*, *121*, S252-S272. doi:10.1542/peds.2007-2243B
- Zuckerman, M., & Kuhlman, D. M. (2000). Personality and risk-taking: Common biosocial factors. *Journal of Personality*, *68*, 999-1029. doi:10.1111/1467-6494.00124

Appendix A
Items for Measures Presented in Chapters 2-4

Underage Drinking Disengagement Scale in Chapter 2 and 4

This section asks you about alcohol.

Please read the following statements and for each statement fill in the response to show how much you agree. For example:

- *If one of the statements said 'It's okay to wear a hat at school' and you **STRONGLY DID NOT** agree You would fill in the circle '**STRONGLY DISAGREE**'*
- *If one of the statements said 'It's okay to wear a hat at school' and you **NEITHER AGREED OR DISAGREED**, You would fill in the circle '**NEITHER AGREE OR DISAGREE**'*
- *If one of the statements said 'It's okay to wear a hat at school' and you **STRONGLY AGREED** You would fill in the circle '**STRONGLY AGREE**'*

For the following questions the term 'teenager' refers to individuals between 13 and 17 years of age.

	Strongly Disagree	Disagree	Neither agree nor disagree	Agree	Strongly Agree
It's okay for teenagers to use alcohol if it helps them to become more confident at parties	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Drinking alcohol is just a way to have fun	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Getting drunk once in a while is okay because it's not as bad as stealing or hurting people.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
If adults leave alcohol lying around it is their fault if teenagers drink	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Teenagers can't be blamed for drinking if their family members are drinking	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
A couple of drinks never hurt anybody	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
It's okay for teenagers to use alcohol if it helps them to relax	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Drinking is cool	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

	Strongly Disagree	Disagree	Neither agree nor disagree	Agree	Strongly Agree
Drinking alcohol is okay because it's not as bad as using illegal drugs	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
If parents don't stop drinking at a party, teenagers can't be blamed for drinking	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Teenagers can't be blamed for drinking if their friends are drinking	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
There is no reason to punish teenagers for drinking, after all it doesn't hurt anyone	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
It's okay for teenagers to drink alcohol if it helps them deal with their problems	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Drinking alcohol is a "confidence boost"	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Only drinking on weekends is okay because it's not as bad as drinking every day	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Teenagers can't be blamed for drinking if their family members encourage them to do it	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
If everyone at a party is drinking it is unfair to blame one kid for drinking	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Getting drunk doesn't really have any negative long term effects	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Moral Disengagement in Chapter 2

This section asks you about different behaviours.

Please read the following statements and for each statement fill in the response to show how much you agree. For example:

- *If one of the statements said 'It's okay to wear a hat at school' and you **STRONGLY DID NOT** agree You would fill in the circle '**STRONGLY DISAGREE**'*
- *If one of the statements said 'It's okay to wear a hat at school' and you **NEITHER AGREED OR DISAGREED**, You would fill in the circle '**NEITHER AGREE OR DISAGREE**'*
- *If one of the statements said 'It's okay to wear a hat at school' and you **STRONGLY AGREED** You would fill in the circle '**STRONGLY AGREE**'*

For the following questions the term 'teenager' refers to individuals between 13 and 17 years of age.

	Strongly Disagree	Disagree	Neither agree nor disagree	Agree	Strongly Agree
It is alright to lose your temper if someone is being mean to your friends ¹¹	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Slapping and shoving someone is just a way of joking	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Damaging someone's property is no big deal when you consider that others are beating people up	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
A member of a group should not be blamed for trouble the group causes	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
If teenagers are living under bad conditions in their neighbourhood they cannot be blamed for behaving aggressively ¹²	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
It is not serious to tell small lies because they don't hurt anybody	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Some people deserve to be treated like animals	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

¹¹ Item from Paciello, Fida, Tramontano, Lupinetti, and Caprara, (2008)'s original scale: "It is alright to fly off the handle to protect your friends"

¹² In the original scale the term "youth" was used instead of "teenager"

	Strongly Disagree	Disagree	Neither agree nor disagree	Agree	Strongly Agree
If people fight and misbehave in school or at work it is their teacher's /superior's fault	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
It is alright to beat someone who bad mouths your family	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
To hit irritating friends is just giving them "a lesson"	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Stealing some money is not too serious compared to those who steal a lot of money	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
A person who only suggests breaking rules should not be blamed if others go ahead and do it	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
If teenagers are not disciplined at home they should not be blamed for misbehaving	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
People do not mind being teased because it shows interest in them	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
It is okay to treat somebody badly who behaved like a "jerk" ¹³	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
If people are careless about where they leave their things it is their own fault if they get stolen	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
It is alright to fight when your group's reputation is threatened ¹⁴	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Taking someone's motorcycle or car without their permission is just "borrowing it"	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
It is not serious to insult a friend because beating him/her up is worse	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
If a group decides together to do something harmful it is unfair to blame a single member of the group for it	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Teenagers cannot be blamed for using bad words when all their friends do it	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Teasing someone does not really hurt him/her	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

¹³ In the original scale the term "worm" was used instead of "jerk"

¹⁴ In the original scale the term "honour" was used instead of "reputation"

	Strongly Disagree	Disagree	Neither agree nor disagree	Agree	Strongly Agree
Someone who is detestable does not deserve to be treated like a human being	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
People who get mistreated usually do things that deserve it	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
It is alright to lie to keep your friends out of trouble	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
It is not a bad thing to “get drunk” once in a while	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Compared to the illegal things people do, taking some things from a store without paying for them is not very serious	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
It is unfair to blame a single person who had only a small part in the harm caused by a group	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Teenagers cannot be blamed for misbehaving if their friends pressured them to do it.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Insults among peers do not hurt anyone	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Some people have to be treated roughly because they lack feelings that can be hurt	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Teenagers are not at fault for misbehaving if their parents are too restrictive (severe, and they don’t allow them any freedom)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Alcohol Guilt Scale in Chapter 2

This section asks you about how you would feel after performing different behaviours. Please indicate how pleased, upset, good and guilty you would feel for having performed each of the behaviours listed.

How would you feel about yourself for having had 5 or 6 full standard drinks of alcohol?

	Not at all	A little bit	Quite	Very
Would you feel guilty?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

How would you feel about yourself for having had 4 or 5 full standard drinks of alcohol?

	Not at all	A little bit	Quite	Very
Would you feel guilty?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

How would you feel about yourself for having had one full standard drink of alcohol?

	Not at all	A little bit	Quite	Very
Would you feel guilty?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

How would you feel about yourself for having had 6 or more full standard drinks of alcohol?

	Not at all	A little bit	Quite	Very
Would you feel guilty?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

How would you feel about yourself for having gotten drunk?

	Not at all	A little bit	Quite	Very
Would you feel guilty?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

How would you feel about yourself for having had 2 or 3 full standard drinks of alcohol?

	Not at all	A little bit	Quite	Very
Would you feel guilty?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Drink ASO Scale in Chapter 3

Mother sub-scale

This section asks you about what your mum would think.

When we do things our mum thinks about us in different ways.
Read the following statements and write a response about how your mum would think about you.

You are drinking an alcoholic drink. Your mum would ...

Be **totally disappointed with you** for drinking alcohol

Be **disappointed with you** for drinking alcohol

Be **pleased with you** for drinking alcohol

Be **totally pleased with you** for drinking alcohol

You are drinking an alcoholic drink. Your mum would ...

Think it is **totally not ok** that you are drinking alcohol

Think it is **not ok** that you are drinking alcohol

Think it is **ok** that you are drinking alcohol

Think it is **totally ok** that you are drinking alcohol

You are drinking an alcoholic drink. Your mum would ...

Totally care that you are drinking alcohol

Care that you are drinking alcohol

Not care that you are drinking alcohol

Totally not care that you are drinking alcohol

Father sub-scale

This section asks you about what your dad would think.

**When we do things our dad thinks about us in different ways.
Read the following statements and write a response about how your dad
would think about you.**

You are drinking an alcoholic drink. Your dad would ...

**Be totally
disappointed with
you for drinking
alcohol**

**Be disappointed with
you for drinking
alcohol**

**Be pleased with
you for drinking
alcohol**

**Be totally
pleased with you
for drinking
alcohol**

You are drinking an alcoholic drink. Your dad would ...

Think it is **totally not
ok** that you are
drinking alcohol

Think it is **not ok** that
you are drinking
alcohol

Think it is **ok** that
you are drinking
alcohol

Think it is **totally
ok** that you are
drinking alcohol

You are drinking an alcoholic drink. Your dad would ...

Totally care that you
are drinking alcohol

Care that you are
drinking alcohol

Not care that you
are drinking
alcohol

Totally not care
that you are
drinking alcohol

Peer sub-scale

This section asks you about what your friends would think.

**When we do things our friends thinks about us in different ways.
Read the following statements and write a response about how your friends
would think about you.**

You are drinking an alcoholic drink. Your friends would ...

Be **totally
disappointed with
you** for drinking
alcohol

Be **disappointed with
you** for drinking
alcohol

Be **pleased with
you** for drinking
alcohol

Be **totally
pleased with you**
for drinking
alcohol

You are drinking an alcoholic drink. Your friends would ...

Think it is **totally not
ok** that you are
drinking alcohol

Think it is **not ok** that
you are drinking
alcohol

Think it is **ok** that
you are drinking
alcohol

Think it is **totally
ok** that you are
drinking alcohol

You are drinking an alcoholic drink. Your friends would ...

Totally care that you
are drinking alcohol

Care that you are
drinking alcohol

Not care that you
are drinking
alcohol

Totally not care
that you are
drinking alcohol

Drunk ASO Scale in Chapter 3 and 4

Mother sub-scale

This section asks you about what your mum would think.

When we do things our mum thinks about us in different ways.

Read the following statements and write a response about how your mum would think about you.

You are drinking alcohol and it is obvious you are drunk. Your mum would ...

Think it is **totally not ok** that you are drunk

Think it is **not ok** that you are drunk

Think it is **ok** that you are drunk

Think it is **totally ok** that you drunk

You are drinking alcohol and it is obvious you are drunk. Your mum would ...

Be **totally disappointed with you** for being drunk

Be **disappointed with you** for being drunk

Be **pleased with you** for being drunk

Be **totally pleased with you** for being drunk

You are drinking alcohol and it is obvious you are drunk. Your mum would ...

Totally care that you are drunk

Care that you are drunk

Not care that you are drunk

Totally not care that you are drunk

Father sub-scale

This section asks you about what your dad would think.

**When we do things our dad thinks about us in different ways.
Read the following statements and write a response about how your dad
would think about you.**

You are drinking alcohol and it is obvious you are drunk. Your dad would ...

Think it is **totally not ok** that you are drunk

Think it is **not ok** that you are drunk

Think it is **ok** that you are drunk

Think it is **totally ok** that you drunk

You are drinking alcohol and it is obvious you are drunk. Your dad would ...

Be **totally disappointed with you** for being drunk

Be **disappointed with you** for being drunk

Be **pleased with you** for being drunk

Be **totally pleased with you** for being drunk

You are drinking alcohol and it is obvious you are drunk. Your dad would ...

Totally care that you are drunk

Care that you are drunk

Not care that you are drunk

Totally not care that you are drunk

Peer sub-scale

This section asks you about what your friends would think.

**When we do things our friends thinks about us in different ways.
Read the following statements and write a response about how your friends
would think about you.**

You are drinking alcohol and it is obvious you are drunk. Your friends would ...

Think it is **totally not ok** that you are drunk

Think it is **not ok** that you are drunk

Think it is **ok** that you are drunk

Think it is **totally ok** that you drunk

You are drinking alcohol and it is obvious you are drunk. Your friends would ...

Be **totally disappointed with you** for being drunk

Be **disappointed with you** for being drunk

Be **pleased with you** for being drunk

Be **totally pleased with you** for being drunk

You are drinking alcohol and it is obvious you are drunk. Your friends would ...

Totally care that you are drunk

Care that you are drunk

Not care that you are drunk

Totally not care that you are drunk

Alcohol Use in Chapter 4

This section asks you about how much and how often you drink alcohol. Read the questions carefully.

If you do not drink alcohol follow the instructions that direct you to the next relevant question.

The researchers have ensured that they cannot identify you from any information in this survey.

When answering questions about a standard drink look at the standard drinks poster. The numbers in bold indicate the number of 'standard drinks' in some typical alcohol containers. Use this poster as a reference to answer the questions below .

Have you ever tried alcohol?

(colour only one circle)

- | | | |
|---|-----------------------|---------------------------|
| No | <input type="radio"/> | Go to Question ... |
| Yes, I've had a sip or taste | <input type="radio"/> | Go to Question ... |
| Yes, I've had at least a full standard drink of alcohol | <input type="radio"/> | Go to question ... |

In the past 3 months, how often have you had an **alcoholic** drink of any kind?

(colour only one circle)

- | | |
|---------------------------------|-----------------------|
| Less often than one day a month | <input type="radio"/> |
| One day a month | <input type="radio"/> |
| 2-3 days a month | <input type="radio"/> |
| One day a week | <input type="radio"/> |
| 2-3 days a week | <input type="radio"/> |
| 4-6 days a week | <input type="radio"/> |
| Everyday | <input type="radio"/> |



Figure 1. Standard Drinks guide¹⁵

Note. Each student was given a copy of this figure to refer to.

On a day that you have an alcoholic drink, how many standard drinks do you usually have?

(Remember: Look at the poster to determine the size of a standard drink)

(colour only one circle)

- A sip or a taste
- 1-2 drinks
- 3-4 drinks
- 5-6 drinks
- 7-8 drinks
- 9-12 drinks
- 13 or more drinks

¹⁵Commonwealth of Australia (2009). *Standard drinks guide*. Retrieved from http://www.westernaustralia.com/en/Travel_Info/Important_Travel_Tips/Pages/Alcohol_Laws_in_Western_Australia.aspx

In the past 3 months, how often have you had more than **4 standard drinks** in a day?

(Remember: Look at the poster to determine the size of a standard drink)

(colour only one circle)

- | | |
|--|-----------------------|
| Never | <input type="radio"/> |
| Less often, but at least once in the past 3 months | <input type="radio"/> |
| One day a month | <input type="radio"/> |
| 2-3 days a month | <input type="radio"/> |
| One day a week | <input type="radio"/> |
| 2-3 days a week | <input type="radio"/> |
| 4-6 days a week | <input type="radio"/> |
| Everyday | <input type="radio"/> |

Mother and Father Identification used in Chapter 3 and 4

Some parts of this questionnaire ask you about your mum and dad.

When we ask you about your **dad**, we mean the man who raised you. If this person isn't your biological dad, it could be your step-dad, adopted dad, uncle, or grandfather – you can answer the questions about this person instead

Please fill in the circle that corresponds to the person you'll think about when you are asked to answer questions about your **dad**:

(colour only one circle)

- Dad (biological dad)
- Step dad
- Adopted dad
- Grandfather
- Other (please write who) _____

For the questions in this section when we say **mum**, we mean the woman who raised you. If this person isn't your biological mum, it could be your step-mum, adopted mum, aunt, or grandmother – you can answer the questions about this person instead.

Please fill in the circle that corresponds to the person you'll think about when you are asked to answer questions about your **mum**:

(colour only one circle)

- Mum (biological mum)
- Step mum
- Adopted mum
- Grandmother
- Other (please write who) _____

Appendix B
Means and Standard Errors for Chapters 2-4

Table 1

Means and Standard Errors for all Variables by Grade and Gender for Chapter 2 (Sample 2)

	Grade 9		Grade 11	
	Adolescent males	Adolescent females	Adolescent males	Adolescent females
Total Sample (N=636)				
Underage drinking	86 (62%)	106 (40%)	98 (88%)	94 (78%)
Underage drinking disengagement	67.35 (20.14)	58.63 (17.86)	65.32 (16.26)	58.58 (16.70)
General moral disengagement	88.55 (20.50)	76.14 (15.88)	80.51 (16.70)	69.67 (15.99)
Alcohol personal standards	27.63 (7.57)	30.25 (5.45)	24.87 (6.86)	26.61 (6.17)
Alcohol guilt	13.82 (6.21)	17.78 (6.41)	10.42 (4.91)	13.97 (6.61)
Drinker Sub-sample (N=636)				
Alcohol-related harm	16.42 (9.68)	13.06 (5.71)	16.64 (6.80)	17.09 (7.64)
Underage drinking disengagement	76.30 (17.24)	70.64 (14.69)	67.67 (15.15)	62.53 (14.75)
General moral disengagement	95.35 (19.64)	84.58 (14.96)	81.62 (16.66)	71.29 (15.11)
Alcohol personal standards	24.63 (7.97)	26.50 (5.86)	23.91 (6.71)	25.25 (5.98)
Alcohol guilt	11.43 (5.03)	13.75 (5.66)	9.34 (3.54)	11.97 (5.51)

Note. As underage drinking is a binary variable, the number and percentage of adolescents in the drinker category are reported. Standard errors are in brackets for the numeric variables.

Table 2

Means and Standard Errors for all Variables for the by Grade and Gender for Total Sample (N = 646) for Chapter 3

	Grade 8		Grade 10	
	Adolescent males	Adolescent females	Adolescent males	Adolescent females
Underage drinking	33 (23%)	22 (14%)	112 (65%)	77 (64%)
ASO Drink Mother	4.24 (1.47)	4.02 (1.50)	5.28 (1.89)	5.05 (1.86)
ASO Drink Father	4.49 (1.83)	3.91 (1.45)	5.60 (2.06)	4.69 (1.81)
ASO Drink Peers	6.84 (2.15)	5.62 (2.13)	8.42 (1.82)	7.33 (2.32)
ASO Drunk Mother	3.46 (1.13)	3.41 (1.01)	3.95 (1.40)	3.81 (1.32)
ASO Drunk Father	3.95 (1.61)	3.55 (1.06)	4.46 (1.61)	3.95 (1.39)
ASO Drunk Peers	5.77 (2.07)	4.69 (1.89)	7.20 (1.94)	5.88 (2.15)

Note. As underage drinking is a binary variable, the number and percentage of adolescents in the drinker category are reported. Standard errors are in brackets for the numeric variables. ASO = Anticipated Social Outcomes

Table 4

Means and Standard Errors for all Variables for the by Grade and Gender for Drinker Sub-sample (N = 347) for Chapter 4

	Grade 8		Grade 10	
	Adolescent males	Adolescent females	Adolescent males	Adolescent females
Time 1				
Frequency	1.43 (1.27)	1.55 (1.15)	1.99 (1.18)	1.91 (1.23)
Quantity	1.57 (1.01)	1.41 (1.06)	2.91 (1.86)	2.47 (1.50)
Frequency Binge	0.31 (0.77)	0.36 (0.75)	1.02 (1.30)	1.01 (1.25)
Alcohol-related harm	12.47 (4.12)	12.33 (3.65)	14.69 (6.05)	15.02 (6.91)
Underage drinking disengagement	64.12 (18.91)	62.65 (19.07)	65.34 (14.67)	61.90 (16.83)
ASO Drunk Mother	3.92 (1.59)	3.68 (1.21)	4.10 (1.45)	4.14 (1.46)
ASO Drunk Father	4.54 (2.05)	3.83 (1.31)	4.70 (1.67)	4.17 (1.49)
ASO Drunk Peers	6.66 (2.06)	5.71 (2.06)	7.53 (1.85)	6.62 (2.07)

	Grade 8		Grade 10	
	Adolescent males	Adolescent females	Adolescent males	Adolescent females
Time 2				
Frequency	2.29 (1.72)	1.75 (1.20)	2.33 (1.47)	2.26 (1.27)
Quantity	2.54 (1.64)	1.89 (1.04)	3.38 (1.85)	2.95 (1.61)
Frequency Binge	1.24 (1.81)	0.66 (1.14)	1.52 (1.64)	1.34 (1.45)
Alcohol-related harm	16.60 (9.98)	13.44 (5.58)	15.25 (6.86)	16.28 (7.24)
Underage drinking disengagement	67.61 (20.63)	65.67 (16.39)	64.33 (15.89)	63.31 (16.20)
ASO Drunk Mother	4.02 (2.05)	4.18 (1.37)	4.54 (1.98)	4.36 (1.60)
ASO Drunk Father	5.12 (2.26)	4.73 (1.98)	5.15 (1.88)	4.56 (1.83)
ASO Drunk Peers	7.76 (2.50)	6.43 (2.08)	7.67 (2.06)	7.30 (2.44)
Time 3				
Frequency	2.34 (1.44)	1.97 (1.13)	2.88 (1.56)	2.26 (1.17)
Quantity	3.05 (1.78)	2.24 (1.14)	3.95 (1.98)	3.20 (1.48)
Frequency Binge	1.59 (1.94)	0.74 (1.21)	2.17 (1.80)	1.46 (1.44)
Alcohol-related harm	17.18 (9.85)	14.71 (6.23)	17.69 (8.83)	15.73 (5.85)

	Grade 8		Grade 10	
	Adolescent males	Adolescent females	Adolescent males	Adolescent females
Underage drinking disengagement	66.00 (19.80)	68.09 (19.03)	70.06 (18.11)	60.84 (15.49)
ASO Drunk Mother	4.41 (1.80)	4.53 (1.59)	5.38 (2.09)	4.78 (1.73)
ASO Drunk Father	5.05 (1.95)	4.70 (1.74)	6.16 (2.43)	5.06 (1.98)
ASO Drunk Peers	7.45 (2.40)	6.63 (2.12)	8.35 (2.30)	7.72 (2.29)

Note. As underage drinking is a binary variable, the number and percentage of adolescents in the drinker category are reported. Standard errors are in brackets for the numeric variables. ASO = Anticipated Social Outcomes

Appendix C
Factor Analyses of Measures Presented in Chapters 2-4

Table 1

Factor Structure for Items of the Alcohol-Harm Scale

Item	Factor Loading
How many times did you plan to get drunk prior to drinking?	.80
How many times did you drink more than you planned?	.79
How many times were you sick after drinking?	.75
How many times did you have a hangover after drinking?	.79
How many times have you been unable to remember what happened while you were drinking?	.80
On how many occasions were you verbally abused because you were affected by alcohol?	.60
On how many occasions did you get into a physical fight because you were affected by alcohol?	.55
On how many occasions did you damage something because you were affected by alcohol?	.75
How many times did you get into trouble with your friends (that means your friends got annoyed with you) because of your drinking?	.48
How many times did you get into trouble with your parents because of your drinking?	.48

Table 2

Factor Structure for Items of the Moral Disengagement Scale

Item	Factor Loading
It is alright to lose your temper if someone is being mean to your friends.	.48
Slapping and shoving someone is just a way of joking.	.58
Damaging someone's property is no big deal when you consider that others are beating people up.	.59
A member of a group should not be blamed for trouble the group causes.	.28
If teenagers are living under bad conditions in their neighbourhood they cannot be blamed for behaving aggressively.	.43
It is not serious to tell small lies because they don't hurt anybody.	.49
Some people deserve to be treated like animals.	.51
If people fight and misbehave in school or at work it is their teacher's /superior's fault.	.53
It is alright to beat someone who bad mouths your family.	.63
To hit irritating friends is just giving them "a lesson."	.64
Stealing some money is not too serious compared to those who steal a lot of money.	.62
A person who only suggests breaking rules should not be blamed if others go ahead and do it.	.50

Item	Factor Loading
If teenagers are not disciplined at home they should not be blamed for misbehaving.	.53
People do not mind being teased because it shows interest in them.	.55
It is okay to treat somebody badly who behaved like a “jerk.”	.69
If people are careless about where they leave their things it is their own fault if they get stolen.	.45
It is alright to fight when your group’s reputation is threatened.	.70
Taking someone’s motorcycle or car without their permission is just “borrowing it.”	.55
It is not serious to insult a friend because beating him/her up is worse.	.59
If a group decides together to do something harmful it is unfair to blame a single member of the group for it.	.30
Teenagers cannot be blamed for using bad words when all their friends do it.	.58
Teasing someone does not really hurt him/her.	.55
Someone who is detestable does not deserve to be treated like a human being.	.56
People who get mistreated usually do things that deserve it.	.62
It is alright to lie to keep your friends out of trouble.	.59
It is not a bad thing to “get drunk” once in a while.	.56

Item	Factor Loading
Compared to the illegal things people do, taking some things from a store without paying for them is not very serious.	.65
It is unfair to blame a single person who had only a small part in the harm caused by a group.	.39
Teenagers cannot be blamed for misbehaving if their friends pressured them to do it.	.58
Insults among peers do not hurt anyone.	.60
Some people have to be treated roughly because they lack feelings that can be hurt.	.62
Teenagers are not at fault for misbehaving if their parents are too restrictive (severe, and they don't allow them any freedom).	.54

Table 3

Factor Structure for Items of the Alcohol Personal Standards Scale

Item	Factor Loading
Have one full standard drink of alcohol	.71
Have two or three full standard drinks of alcohol	.81
Have three or four full standard drinks of alcohol	.95
Have five or six full standard drinks of alcohol	.92
Have more than six full standard drinks of alcohol	.87
Drink enough alcohol to get drunk	.86

Table 4

Factor Structure for Items of the Alcohol Guilt Scale

Item	Factor Loading
How would you feel about yourself for having had one full standard drink of alcohol?	.72
How would you feel about yourself for having had 2 or 3 full standard drinks of alcohol?	.88
How would you feel about yourself for having had 4 or 5 full standard drinks of alcohol?	.93
How would you feel about yourself for having had 5 or 6 full standard drinks of alcohol?	.94
How would you feel about yourself for having had 6 or more full standard drinks of alcohol?	.87
How would you feel about yourself for having gotten drunk?	.86

Appendix D
Final Ethics Approval Letters for Studies Presented in Chapters 2-4

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5 May 2010

Associate Professor Kay Bussey
Department of Psychology
Faculty of Human Sciences

Reference: 5201000186

Dear Associate Professor Bussey

FINAL APPROVAL

Title of project: *Social Cognitive Processes as mediators between Group Bullying and Adolescent Alcohol Use*

Thank you for your recent correspondence. Your response has addressed the issues raised by the Human Research Ethics Committee and you may now commence your research. This Final approval is subject to the below mentioned conditions:

1. Please forward a copy of the approval from the Catholic Education office when available.
2. Please forward a copy of the correspondence from those principles indicating their preference for passive consent when available.

The following personnel are authorised to conduct this research:

Associate Professor Kay Bussey- Chief Investigator/ Supervisor
Miss Catherin Quinn, Miss Kate Stainlay, Ms Kylie Minahan, Miss Leila Brown and Miss Madeline Jarrett- Co-Investigators

Please note the following standard requirements of approval:

1. The approval of this project is **conditional** upon your continuing compliance with the *National Statement on Ethical Conduct in Human Research (2007)*.
2. Approval will be for a period of five (5 years) subject to the provision of annual reports. **Your first progress report is due on 05/05/2011.**

If you complete the work earlier than you had planned you must submit a Final Report as soon as the work is completed. If the project has been discontinued or not commenced for any reason, you are also required to submit a Final Report on the project.

Progress Reports and Final Reports are available at the following website:
http://www.research.mq.edu.au/researchers/ethics/human_ethics/forms

3. If the project has run for more than five (5) years you cannot renew approval for the project. You will need to complete and submit a Final Report and submit a new application for the project. (The five year limit or renewal of approvals allows the Committee to fully re-review research in an environment where legislation guidelines and requirements are continually changing, for example, new child protection and privacy laws).
4. Please notify the Committee of any amendment to the project.
5. Please notify the Committee immediately in the event of any adverse effects on participants or of any unforeseen events that might affect continued ethical acceptability of the project.
6. At all times you are responsible for the ethical conduct of your research in accordance with the guidelines established by the University. This information is available at: <http://www.research.mq.edu.au/policy>

If you will be applying for or have applied for internal or external funding for the above project it is your responsibility to provide Macquarie University's Research Grants Officer with a copy of this letter as soon as possible. The Research Grants Officer will not inform external funding agencies that you have final approval for your project and funds will not be released until the Research Grants Officer has received a copy of this final approval letter.

Yours sincerely



Dr Karolyn White
Director of Research Ethics
Chair, Human Research Ethics Committee

**Cc: Miss Madeline Jarrett, Department of Psychology, Faculty of Human Sciences
Miss Leila Brown, Department of Psychology, Faculty of Human Sciences
Ms Kylie Minahan, Department of Psychology, Faculty of Human Sciences
Miss Kate Stainlay, Department of Psychology, Faculty of Human Sciences
Miss Catherine Quinn, Department of Psychology, Faculty of Human Sciences**


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24 March 2011

Associate Professor Kay Bussey
Department of Psychology
Faculty of Human Sciences
Macquarie University

Reference: 5201001460

Dear Associate Professor Bussey

Re: "Socio Cognitive Predictors of Bullying and Underage Drinking"

Thank you for your recent correspondence. Your response has addressed the issues raised by the Human Research Ethics Committee and you may now commence your research.

The following personnel are authorised to conduct this research:

Associate Professor Kay Bussey- Chief Investigator/Supervisor
Miss Catherine Quinn- Co-Investigator

NB. STUDENTS: IT IS YOUR RESPONSIBILITY TO KEEP A COPY OF THIS APPROVAL LETTER TO SUBMIT WITH YOUR THESIS.

Please note the following standard requirements of approval:

1. The approval of this project is conditional upon your continuing compliance with the National Statement on Ethical Conduct in Human Research (2007).
2. Approval will be for a period of five (5) years subject to the provision of annual reports. Your first progress report is due on 24 March 2012.

If you complete the work earlier than you had planned you must submit a Final Report as soon as the work is completed. If the project has been discontinued or not commenced for any reason, you are also required to submit a Final Report for the project.

Progress reports and Final Reports are available at the following website:

http://www.research.mq.edu.au/for/researchers/how_to_obtain_ethics_approval/human_research_ethics/forms

3. If the project has run for more than five (5) years you cannot renew approval for the project. You will need to complete and submit a Final Report and submit a new application for the project. (The five year limit on renewal of approvals allows the Committee to fully re-review research in an environment where legislation, guidelines and requirements are continually changing, for example, new child protection and privacy laws).

4. All amendments to the project must be reviewed and approved by the Committee before implementation. Please complete and submit a Request for Amendment Form available at the following website:

http://www.research.mq.edu.au/for/researchers/how_to_obtain_ethics_approval/human_research_ethics/forms

5. Please notify the Committee immediately in the event of any adverse effects on participants or of any unforeseen events that affect the continued ethical acceptability of the project.

6. At all times you are responsible for the ethical conduct of your research in accordance with the guidelines established by the University. This information is available at the following websites:

<http://www.mq.edu.au/policy/>

http://www.research.mq.edu.au/for/researchers/how_to_obtain_ethics_approval/human_research_ethics/policy

If you will be applying for or have applied for internal or external funding for the above project it is your responsibility to provide the Macquarie University's Research Grants Management Assistant with a copy of this letter as soon as possible. Internal and External funding agencies will not be informed that you have final approval for your project and funds will not be released until the Research Grants Management Assistant has received a copy of this letter.

Please retain a copy of this letter as this is your official notification of final ethics approval.

Yours sincerely



Dr Karolyn White
Director of Research Ethics
Chair, Ethics Review Committee (Human Research)