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Running Head: ADOLESCENT DRINKING AND DELINQUENT ACTIVITIES

Adolescent Drinking and Delinquent Activities: Associations and Gender Differences

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Abstract

A thorough understanding of adolescent drinking and delinquent behaviour is required in order to implement early prevention and intervention programs in schools. Broadly based on the common cause model of adolescent deviance, this study investigated and compared, across genders, the prevalence and inter-relationships of various indicators of adolescent drinking and delinquency. Participants were 312 secondary school students (aged 13-17, 57.7% male) in Canberra, Australia, who completed an anonymous survey comprising the Alcohol Use Disorders Identification Test and the Australian Self-Reported Delinquency Scale - Revised. We found very few gender differences in drinking and delinquency patterns, and noted medium to strong associations among various dimensions of adolescent drinking and delinquent activities. Resulting implications for school prevention programs are considered.

Key words: Problem drinking, delinquency, school students, prevention, gender

Adolescent Drinking and Delinquent Activities: Associations and Gender Differences

With high levels of problem drinking and juvenile offence rates triple that of the adult cohort (Australian Institute of Criminology, 2011), delinquency and problem drinking are serious problems among Australian adolescents. As young people spend a substantial proportion of their time at school, schooling institutions are commonly seen as key agencies to identify early maladjustment and institute interventions (Griffin & Griffin, 1978).

In order for schools to contribute to the prevention of adolescent delinquency and problem drinking, a thorough understanding of the co-occurrence between problem drinking and various forms of contemporary delinquency is required. Because of the hidden nature of delinquency and associated deviant behaviours, many adolescents are never apprehended for these activities. As a result, official statistics may underestimate the prevalence of adolescent drinking and delinquent activities in the general adolescent population, and very few studies have compared specific areas of offending and their associations with problem drinking concurrently, particularly among Australian school students.

Despite substantial empirical research depicting strong associations between problem drinking and general delinquency (e.g., Barnes, Welte, & Hoffman, 2002; Kenny, & Schreiner, 2009), most epidemiological studies include narrow definitions of delinquency or use delinquency as an umbrella term for a range of behaviours (Hasking, Scheier, & Abdallah, 2011). The resulting methodological implication is that delinquency is generally considered a unitary phenomenon with equal weights given to different types of offending. Therefore, relationships between more contemporary forms of delinquency, such as cyber-bullying, with problem drinking are lesser known, and gender differences in various types of delinquent activities associated with problem drinking are rarely explored. With new trends suggesting rising incidences of problem drinking and delinquency, including violence, among young females (Carrington, 2013; Clarke, Kim, White, Jiao, & Mun, 2013; Keyes, Li &

Hasin, 2011), there is a need to examine these patterns and inter-relationships using self-reports among Australian male and female school students, and to evaluate gender differences. Owing to the often hidden and secretive nature of adolescent delinquency and problem drinking, and because many adolescents are never apprehended for these behaviours, self-report methods may elicit a more accurate estimate of the prevalence of delinquency and problem drinking among adolescents within the general population.

Addressing the unitary constraints of the term delinquency, Curcio, Mak and Knott (2015) recently re-developed the Australian Self-Reported Delinquency Scale (Mak, 1993) to maintain consistency with the contemporary youth culture and for use in general adolescent populations. The Australian Self-Reported Delinquency Scale-Revised (ASRDS-R; Curcio et al., 2015) comprises eight subscales, derived from confirmatory factor analysis, to characterise an individual's involvement in specific types of delinquent activities.

The ASRDS-R was found to demonstrate acceptable levels of internal consistency reliability for the total scale (.93) and its subscales; Alcohol use (illegally purchasing and consuming alcohol in public places; .80), Driving/Vehicle (illegal behaviours using a vehicle such as intoxicated driving or racing with others; .80), Theft (shoplifting or stealing; .70), Cheat (misdemeanours such as wagging school; .65), Public Disturbance (damaging public or private property; .78), Fight (violent or threatening acts; .62), Drugs (consumption of licit and illicit substances; .86), and Media (using various forms of media to threaten or harass another, including designing, obtaining, or using fake identification; .64), as well as concurrent validity against self-reported police warnings.

While the 3-item alcohol subscale of the ASRDS-R assesses underage alcohol use, it does not consider more problematic forms of drinking. For the purposes of this paper, two very different approaches to evaluating adolescent drinking will be examined: underage alcohol use as commission of status offences, and problematic drinking styles. From this

point onwards, the term *underage alcohol use*, or simply *alcohol use*, will refer to underage acquisition or consumption of alcohol in public places that is illegal owing to the age of the offender (assessed by the ASRDS-R Alcohol subscale). The term *problem drinking* will refer to drinking styles characterised by excessive or frequent consumption and alcohol-related problems (assessed by the Alcohol Use Disorders Identification Test (AUDIT); Saunders, Aasland, Babor, de la Fuente, & Grant, 1993).

Common cause models of general adolescent deviance, such as Jessor and Jessor's (1977) problem behaviour theory, hypothesise that common factors account for adolescent involvement in a range of multiple problematic behaviours. Similarly, Curcio, Mak and George's (2013) revised psychosocial control theory states that personality traits, poor attachment to parents, low perceived seriousness of risk-taking behaviours, and association with deviant peers increase the likelihood of adolescent delinquency and problem drinking specifically. Based on these existing theories, delinquency and problem drinking share classes of etiological causes and are likely to have high rates of concurrence. Therefore, the relationships among various indicators of alcohol use and delinquent activities could be expected to be strong for both male and female general adolescent populations.

While there is limited research examining self-reported patterns of problem drinking, alcohol use, and various types of delinquency among Australian school students, research conducted in other countries or with older populations show that violent offences, vandalism, drug use, and car theft are more often associated with problem drinking than other offences (Felson, Savolainen, Aaltonen, & Moustgaard, 2008; Franklin, Allison, & Sutton, 1992; Greenfield & Henneberg, 2001; Helstrom, Bryan, Hutchison, Riggs, & Blechman, 2004; Madu & Matla, 2003). In order to inform school prevention and intervention programs, further research is required to comprehend whether similar patterns occur among an Australian adolescent cohort, and whether these relationships hold for males and females.

The Present Study

Overall the present study aimed to investigate and compare the patterns and inter-relationships of various indicators of self-reported drinking and delinquent behaviours in secondary school male and female students. To address this overall aim, we formulated five research objectives.

First, we set out to investigate item-level patterns of self-reported problem drinking and underage alcohol use for male and female adolescents, and to examine gender differences. Predicated on recent findings (Clarke et al., 2013; Keyes et al., 2011), we hypothesised that males and females would not differ in self-reported problem drinking or alcohol use items.

Second, we examined gender differences in problem drinking, alcohol use, and delinquency at AUDIT and ASRDS-R scale and subscale levels. Based on recent research (Carrington, 2013; Clark et al., 2013), we hypothesised that males and females would not differ in problem drinking styles, alcohol use, or delinquency at scale and subscale levels.

Third, we aimed to examine the inter-correlations of problem drinking, alcohol use, and different types of delinquent activities, for males and females separately. Based on common cause perspectives (Curcio et al., 2013; Jessor & Jessor, 1977), we tested the third hypothesis that both problem drinking and alcohol use indicators would maintain strong and positive associations with various types of delinquent activities.

The fourth research objective, also involving correlates, was to investigate whether problem drinking would be particularly strongly associated with certain types of delinquent activities. Specifically, we compared the magnitude of the correlation coefficients of problem drinking with each of the delinquent activities for males and females separately. Consistent with international findings (e.g. Felson et al., 2008; Helstrom et al., 2004), we tested the fourth hypothesis that the magnitude of the correlations between problem drinking

and forms of delinquency involving physical violence, use of substances other than alcohol, and car theft would be stronger than other forms of offences.

For our fifth and final objective, we set out to compare correlation coefficients across males and females to determine whether engagement in problem drinking was more strongly associated with particular types of delinquent activities for one gender over another.

Pertaining to recent research indicating a narrowing of the gender gap in relation to problem drinking, delinquency, and violence (Carrington, 2013; Keyes et al., 2011), we tested the fifth hypothesis that there would be no gender differences in the various correlates of problem drinking with delinquent activities.

Method

Participants

After obtaining clearance from appropriate ethical boards, we approached the principals of various government and independent high schools and colleges in Canberra, Australia, for permission to recruit students aged less than 18 years (legal drinking age in Australia) to participate. Owing to ethics protocol, students from government schools required opt-in parental consent, whereas students from independent schools were allowed opt-out parental consent. Students also provided consent and were informed that the survey was voluntary. Eight schools agreed to participate (four government, four independent), and had students with parental consent complete the 15 minute survey during class.

Due to the sensitive nature of questions, an online survey was designed as computerised surveys have been shown to limit socially desirable responses by ensuring anonymity (Grimm, 2010). However, as some classes did not have access to a computer lab or laptops, these participants completed the survey via paper format (60.9%) rather than online (39.1%). In both online and paper formats, the students were informed of, and directed to the survey by author AC, a trained psychologist and researcher, or by the student's

teacher. In the instances where the students were directed to the survey by their teacher, the teacher read a blurb about the survey and directions to complete the survey provided by the authors. The convenience sample resulted in 180 males and 132 females (from a pool totalling approximately 800 students) aged 13 to 17 years (mean age 15.64).

Measures

Problem drinking. Problem drinking was assessed using items from the Alcohol Use Disorders Identification Test (AUDIT; Saunders et al., 1993). The AUDIT is a 10-item questionnaire that has been used in Australian contexts (Conigrave, Saunders, & Reznik, 1995), as well as with adolescents under the age of 18 years (Santis, Garmendia, Acuña, Alvarado, & Arteaga, 2009). The three subscales identify quantity and frequency of consumption, problems resulting from drinking, and alcohol dependence. The total AUDIT score is a summation of all three subscales with a possible range of 0-40 (Selin, 2006; Reinert & Allen, 2007).

Delinquency. Patterns of delinquency, including the commission of alcohol-related status offences, were assessed using the 30-item Australian Self-Reported Delinquency Scale-Revised (ASRDS-R; Curcio et al., in 2015). Participants were requested to indicate their engagement (Yes/No response format) in a range of marginally deviant to seriously criminal activities over the past six months. The ASRDS-R also contains three lie items to detect potentially biased responding (failing to respond to at least two of the three lie items), and includes an item referring to police warnings for validity check.

The ASRDS-R comprises eight subscales to facilitate assessment of engagement in specific types of offending (Alcohol Use, Driving/Vehicle, Theft, Cheat, Public Disturbance, Fight, Drugs, and Media) with coefficients ranging from .62 to .86 for a combined sample of male and female adolescents (Curcio et al., 2015). The Alcohol subscale of the ASRDS-R comprises three items pertaining to illegally purchasing or consuming alcohol, drinking

alcohol in a public location, and drinking alcohol in a venue where the age requirement is 18 and over. Given the AUDIT was the primary measure used in the current study, the three items on the ASRDS-R pertaining to alcohol use were removed from the overall ASRDS-R total in subsequent analyses to minimise inflated scores due to conceptual overlap.

Data Analysis

Missing data were below 5%, and were treated with direct proration by calculating the average valid item response for each participant (Orr, 1995) where there were no more than 20% of items with missing values for a scaled score. This imputation method combines available information from the observed data for each participant in order to estimate the missing data and population parameters. Four additional cases were excluded for being 18 years of age and a further two were excluded due to potentially biased responding (failing to respond to at least two of the four lie items on the ASRDS-R). In terms of assessing the AUDIT Problems subscale, we adopted the recommended cut-off score of 8 or more to signify hazardous/harmful alcohol use (e.g., Conigrave, Hall, Saunders, 1995; Reinert & Allen, 2007).

Results

Gender Differences in Item-Level Patterns of Problem Drinking and Alcohol Use

The total score on the AUDIT was considered to contextualise the patterns and prevalence of drinking within the current sample of school students. The mean total AUDIT score was 3.54, with 17.3% of overall participants (17.6% of males and 16.7% of females) consuming alcohol at hazardous/harmful levels (≥ 8 on the total measure).

To address the hypothesis that males and females would not differ in self-reported problem drinking or alcohol use, we examined item-level participation rates on key adolescent drinking items. Responses to items comprising the AUDIT Consumption and

Problems subscales and the ARSDS-R Alcohol Use subscale are presented in Table 1. Item-level chi-square tests showed no gender difference in any of the self-reported items on problem drinking and alcohol use. For item-level gender differences in self-reported ARSDS-R delinquency items refer to Curcio et al. (2014).

Insert Table 1 Here

Gender Differences in Problem Drinking, Alcohol Use and Delinquency at Scale and Subscale Levels

Table 2 presents descriptive statistics, including coefficient alphas, for the AUDIT and its three subscales and the ARSDS-R and its eight subscales for male and female adolescents separately. Some caution is advised owing to female alphas below .6 for three delinquency subscales (Theft, Fight, and Media).

The distributions of most scales and subscales were positively skewed, most notably the AUDIT Dependence subscale. This was due to many participants scoring zero on this measure. While alcohol consumption is often frequent and excessive in youth, alcohol dependence usually does not develop until early adulthood, requiring a consistently high level of consumption over a lengthy period of time (National Institute of Health, 2007). We decided to exclude the Dependence subscale from further analyses. Owing to slightly skewed data, we adopted a more stringent p -value ($< .01$).

To address the hypothesis that males and females would not differ in patterns of problem drinking, alcohol use or delinquency at scale or subscale level, gender differences across the AUDIT and ARSDS-R scales and subscales were compared using a series of independent samples t tests with Bonferroni correction. The results are reported in Table 2, and reveal that gender differences were found only for the ARSDS-R Fight subscale. Males ($M = .50, SD = .84$) reported higher participation rates for violent offences than did females ($M = .17, SD = .47$).

Insert Table 2 Approximately Here

Associations between Problem Drinking, Alcohol Use, and Various Delinquent Activities

To test the hypothesis that both problem drinking and alcohol use indicators would maintain strong, positive associations with various types of delinquent activities, we examined the inter-relationships of these behaviours by calculating Pearson correlations at AUDIT and ASRDS-R scale and subscale levels. We report the results in Table 3. Notably large correlations were found between the AUDIT scale and subscales with the ASRDS-R delinquency total, despite the removal of the three items pertaining to alcohol use. Large correlations were also found between AUDIT problem drinking scale and subscales with the ASRDS-R underage alcohol use subscale. All remaining scaled scores correlated positively, showing medium to large effect sizes (Cohen, 1988), and were significant at $p < .001$.

Insert Table 3 Approximately Here

Correlates between Problem Drinking and Types of Delinquent Activities

Our next hypothesis was that the magnitude of the correlation between problem drinking and forms of delinquency involving physical violence, use of substances other than alcohol, and car theft would be stronger than that between problem drinking and other offences. Using the correlation coefficients presented in Table 3, we conducted Fisher's Z tests to compare the magnitude of the correlation coefficients of problem drinking (measured by the total AUDIT score) with each of seven different areas of delinquent activities (measured by the ASRDS-R subscales). We performed the comparisons for males and females separately. We excluded the ASRDS-R Alcohol Use subscale from the analysis owing to conceptual overlap with AUDIT problem drinking. Table 4 shows the Fisher's Z tests comparing the magnitude of the correlation coefficients only where we found statistically significant results.

In terms of correlates with problem drinking, among males, we found scores on the Drugs factor (involving the use of cigarettes and illicit substances) to be more strongly associated with problem drinking than scores on any other delinquent activity. Scores on Driving/Vehicle, Public Disturbance, and Media were generally more strongly related to problem drinking than scores on Theft, Cheat and Fight.

Among females, we found scores on Drugs to be more strongly associated with problem drinking than scores on Theft, Public Disturbance, Fight, and Media, but not more so than scores on Driving/Vehicle or Cheat. Scores on Cheat were more strongly related to problem drinking than scores on Fight.

Correlates between Problem Drinking and Types of Delinquent Activities across Gender

Additionally, we set out to compare correlation coefficients of problem drinking with types of delinquent activities across males and females to determine whether particular types of delinquent activities were more strongly associated with problem drinking for one gender over another. We found no gender differences in the associations of problem drinking with scores on the delinquency subscales when taking a more stringent p -value (.001) into consideration.

Insert Table 4 Approximately Here

Discussion

Our overall aim was to investigate and compare the patterns and inter-relationships of various indicators of self-reported problem behaviours in secondary school male and female students. Our research objectives were to: (a) examine item-level patterns of self-reported problem drinking and alcohol use, (b) inspect patterns of problem drinking, alcohol use, and delinquency at AUDIT and ASRDS-R scale and subscale levels; (c) investigate inter-relationships of problem drinking, alcohol use as status offences, and other areas of

delinquent activities; (d) compare the magnitude of the correlation coefficient between problem drinking and each of the delinquent activities; and (e) compare gender differences regarding correlates of problem drinking and various delinquent offences.

Gender Differences in Patterns of Problem Drinking, Alcohol Use, and Delinquency

In relation to our first and second research objectives, the hypotheses that males and females would not differ in self-reported alcohol use, problem drinking or delinquency at item-level, scale-level, and subscale-level were supported. Males and females did not differ in terms of problematic alcohol use or rates of underage alcohol purchase and consumption. Similarly, male and female participation rates did not differ in regards to overall levels of self-reported delinquency, nor for offences involving the use of vehicles, theft, cheating, public disturbance, drugs, or media. Males were, however, significantly more likely to report engaging in fights or using or threatening to use weapons or force than were females. These findings provide some support for recent research indicating that females are catching up with their male counterparts in terms of problematic styles of drinking (Clarke et al., 2013; Keyes et al., 2011) and delinquent involvement (Carrington, 2013).

Associations between Problem Drinking, Alcohol Use, and Various Delinquent Activities

For our third research objective, we examined the inter-correlations of different aspects of adolescent drinking with various delinquent activities. Supporting theories predicated on common cause conceptualisations (e.g. Curcio et al., 2013; Jessor & Jessor, 1977), we found moderate to strong associations between problem drinking, alcohol use as status offences, and additional varieties of delinquent activities, including illegal driving or vehicle behaviours, theft, cheating, public disturbance, fighting, drug use, and media. This finding suggests that alcohol-related problems are not a standalone issue, but rather are associated with other law-violating behaviours, and are likely caused by similar social

relationships, individual traits, or environmental systems.

We further investigated whether problem drinking would be particularly strongly associated with certain types of delinquent activities. We predicted that the magnitude of the correlations between problem drinking and forms of delinquency involving physical violence, drug use, and car theft would be strongest. In partial support of this hypothesis, and consistent with international findings (Felson et al., 2008; Helstrom et al., 2004; Madu & Matla, 2003), we found that scores on measures of drug use and driving offences were generally more likely to be associated with problem drinking than other types of delinquent activities. It was further found that, among males, scores on public disturbance tended to co-occur with problem drinking more frequently than scores on theft.

However, in direct contrast to previous research (e.g. Franklin et al., 1992; Greenfield & Henneberg, 2001), the current findings indicated that scores on violent offences were less likely to co-occur with problem drinking than scores on drug use and media offences for males, and drug use and cheating (e.g. wagging school) for females. These findings reveal that problem drinking is particularly associated with drug use, cyber-bullying, and school truancy for Australian school students, indicating avenues for school education and prevention programs. While the current sample comprised a general adolescent population, associations between problem drinking and violent offences may be more pronounced in official offender or clinical samples, or among adults of legal drinking age.

Correlates between Problem Drinking and Types of Delinquent Activities across Gender

Finally, we set out to compare correlation coefficients across males and females to determine whether engagement in certain types of delinquent activities correlated more strongly with problem drinking for one gender over another. The hypothesis that there would be no gender differences in the various correlates of problem drinking with delinquent

activities was supported. In terms of correlates with problem drinking, scores on drug use were most commonly affiliated for both genders. Among males, scores on driving and media offences were more strongly related with problem drinking, whereas scores on driving and cheating offences were more commonly associated with problem drinking among females. It is interesting to note that scores on media offences (e.g. threatening or intimidating someone via mobile phone or online) were prominent among males, as covert forms of aggression have typically been viewed as female-dominant (Lansford et al., 2012). It is possible that, due to recent advances in technology, relational aggression (e.g. cyber-bullying) may be becoming more prominent than physical aggression for young adolescents as victims become easily accessible through social networking sites. Finally, there were no significant gender differences regarding associations between problem drinking with each of the delinquency offences. To aid gender specificity, problem drinking interventions could also target drug use, driving and media offences for males, and drug use, driving, and cheating offences for females.

The findings of the current study indicate that drinking and delinquency patterns are already well entrenched within Australian secondary school students. Current Australian school programs to address these issues tend to be secondary interventions in nature - aimed at school-age children and designed in response to already established behavioural problems (Omaji, 1992). However, evaluations conducted in the United States conclude that preschool-based prevention strategies, such as the Perry Preschool Project, are the most effective in actively preventing the onset of drinking and delinquent behaviour (Omaji, 1992; Potas, Vining & Wilson, 1990; Zagar, Busch, & Hughes, 2009). Perhaps the Australian education system could implement similar programs in the preschool years, programs that are holistic in nature and address risk factors for delinquency and problem drinking such as those highlighted by Curcio et al.'s (2013) revised psychosocial control theory. For example,

prevention strategies could focus on providing practical and social support to parents, education for parents and children regarding the seriousness of the law and risk-taking behaviours, strategies to increase empathy and self-discipline, and skills for school-readiness, while simultaneously fostering positive and supportive attachments with the schooling system (Curcio et al., 2013; Omaji, 1992).

Limitations

Owing to the cross-sectional nature of the research, casual connections cannot be inferred. While the current findings may provide some insight into patterns of adolescent drinking and delinquency in the city of where the research was conducted, Canberra, it likely does not represent Australian adolescents in general. The self-report method of the current measures also presents some limitations. Specifically, adolescents may report inaccurately, and are subject to biases such as memory distortions, social desirability, and acquiescent responses (Paulhus, 1991; Sibley et al., 2010). In the case of the ASRDS-R, biases due to social desirability can, to some extent, be detected by curiously low scores on the three lie items embedded into the delinquency scale. Despite potential response bias, the use of self-report measures allowed us to capture patterns of adolescent alcohol use and delinquency that would otherwise remain concealed due to the somewhat secretive nature of these acts.

Another limitation pertains to sample representativeness and response rates. Ethics protocol required Canberra government students to obtain opt-in parental consent. While we were unable to determine the exact response rates for government versus independent students, we observed that it was harder to recruit student participants from government schools. This may have led to the selection of students with particularly supportive parents or with lower levels of alcohol use and delinquency in government schools. Female alphas were below .6 on three of the delinquency subscales, perhaps indicating low levels of delinquent involvement. Furthermore, students responding via paper format reported significantly

higher levels of problem drinking than students responding via online format, which may have potentially confounded results.

In terms of adopting a cut-off score for AUDIT problem drinking, we used the generally recommended cut-off score of 8 (Conigrave, Hall, Saunders, 1995; Reinert & Allen, 2007). Some researchers suggest that when screening adolescent participants, this cut-off should be lower (e.g. Meneses-Gaya, Zuardi, Loureiro, & Crippa, 2009; Santis et al., 2009), although there is debate as to what cut-off score allows for the best sensitivity. Finally, participants' ages ranged from 13 to 17, which may also account for variation in engagement in drinking and delinquency. Assessing patterns of problem drinking, alcohol use, and additional types of delinquent activities at various developmental stages may provide further insight into such trajectories.

Future Research and Conclusions

Partially supporting theories based on common cause conceptualisations (e.g. Curcio et al., 2013; Jessor & Jessor, 1997), the current study found that school students who engage in problem drinking are more likely to be involved in all areas of delinquency, with limited gender differences. In the current study, we used a recently updated measure of delinquency that facilitated assessment of engagement in specific areas of offending. Future research could adapt the ASRDS-R to hold relevance for young adult populations containing similar items and subscales to the adolescent measure. This would assist in facilitating a succinct assessment of overall levels of criminality, as well as characterise involvement in specific types of offending, such as the propensity for violence and problem drinking. Another avenue for future research could investigate developmental trajectories of problem drinking and delinquency for adolescents and young adults, and whether etiological risk factors are similar given the high prevalence of problem behaviours among these cohorts.

Prevention efforts to reduce risk factors should be targeted at pre-school age to deter

the initiation of alcohol use and delinquent activity, and should be evaluated for efficacy in Australian students. Interventions aimed at primary and high-school students could include education, particularly pertaining to the severity of problem drinking, drug use, cyber-bullying, and driving/vehicle-related offences, and aim to prevent school drop out and truancy by fostering strong attachments with the school environment.

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Table 1

Self-Reported Participation in AUDIT Problem Drinking and ASRDS-R Alcohol-Related Status Offence Items for Males and Females

Adolescent drinking	Males (<i>n</i> = 180)	Females (<i>n</i> = 132)	Gender difference $\chi^2(p)$
AUDIT Consumption items			
Consuming 6 or more standard drinks on a typical drinking session	20.5%	18.2%	.601
Binge drinking (6 or more standard drinks) monthly or more	13.9%	11.4%	.510
Drinking on a weekly basis ^a	7.2%	7.5%	.906
Binge drinking (6 or more standard drinks) on a weekly basis	6.1%	4.6%	.547
AUDIT Problems items			
Unable to remember the night before	16.2%	14.3%	.678
Feelings of guilt or regret after drinking	11.1%	15.1%	.292
Injured yourself or someone else as a result of drinking	10.6%	14.4%	.306
Others concerned about drinking or suggested to cut down	16.1%	14.4%	.449
ASRDS-R Alcohol-Related Status Offence items^b			
Bought or illegally obtained alcohol	28.9%	37.1%	.125
Drinking in a public location (e.g. school function, park, music festival)	25%	27.3%	.651
Drinking in a venue where the age limit is 18 and over	12.8%	18.2%	.187

Note. AUDIT = Alcohol Use Disorders Identification Test; ASRDS-R = Australian Self-Reported Delinquency Scale – Revised.

^aDrinking on a weekly basis refers to consuming alcohol 2 to 3 times a week.

^bItem-level gender differences in ASRDS-R items are taken from Curcio et al. (in press).

Table 2

Descriptive Statistics and Gender Differences for the AUDIT and ASRDS-R (excluding alcohol items) Scales and Respective Subscales (N = 312)

	Males (n = 180)						Females (n = 132)					Gender Differences	
	Possible Range	Actual Range	Mean	SD	S	α	Actual Range	Mean	SD	S	α	t	p
AUDIT Problem Drinking													
AUDIT Total	0-40	0-40	3.48	6.76	2.72	.91	0-40	3.61	6.43	2.70	.91	-.16	.872
AUDIT Consumption	0-12	0-12	1.93	3.09	1.62	.90	0-12	1.92	2.76	1.65	.88	.04	.966
AUDIT Dependence	0-12	0-12	.51	1.71	4.72	.83	0-12	.45	1.49	5.20	.90	.36	.716
AUDIT Problems	0-16	0-16	1.03	2.64	3.14	.79	0-16	1.23	2.81	2.89	.77	-.67	.506
ASRDS-R Delinquency													
ASRDS-R Total ^a	0-27	0-27	4.58	5.98	1.71	.93	0-23	3.49	4.78	1.99	.91	1.78	.076
ASRDS-R Underage Alcohol Use	0-3	0-3	.67	1.05	1.29	.81	0-3	.83	1.10	.94	.78	-1.29	.197
ASRDS-R Driving/Vehicle	0-5	0-5	.51	1.16	2.50	.83	0-5	.42	.96	2.86	.73	.70	.483
ASRDS-R Theft	0-3	0-3	.66	1.02	1.30	.78	0-3	.51	.80	1.50	.51	1.43	.153
ASRDS-R Cheat	0-4	0-4	1.04	1.21	.94	.66	0-4	.90	1.10	1.29	.66	1.03	.304
ASRDS-R Disturb	0-4	0-4	.88	1.32	1.26	.80	0-4	.68	1.11	1.63	.73	1.46	.145
ASRDS-R Fight	0-3	0-3	.50	.84	1.69	.65	0-3	.17	.47	3.33	.43	4.44	.000
ASRDS-R Drugs	0-5	0-5	.58	1.30	2.40	.88	0-5	.58	1.19	2.25	.82	-.00	.998
ASRDS-R Media	0-3	0-3	.40	.79	2.13	.67	0-3	.23	.59	2.82	.58	2.14	.033

Note. AUDIT = Alcohol Use Disorders Identification Test; ASRDS-R = Australian Self-Reported Delinquency Scale – Revised; S = Skewness.

^aThe three ASRDS-R items pertaining to alcohol use were excluded from the ASRDS-R total in all analyses in order to reduce conceptual overlap. Gender differences (*t*, *p*) highlighted in bold are significant with Bonferroni’s correction.

Table 3

Correlations between AUDIT Problem Drinking and ASRDS-R Adolescent Delinquency Scale and Subscale Scores for Males and Females

	1	2	3	4	5	6	7	8	9	10	11	12
AUDIT Problem Drinking												
1. AUDIT Total	-	.90	.93	.72	.76	.63	.33	.45	.55	.46	.78	.65
2. AUDIT Consumption	.92	-	.72	.67	.76	.58	.30	.43	.49	.44	.75	.57
3. AUDIT Problems	.94	.77	-	.68	.70	.59	.35	.42	.54	.43	.70	.63
ASRDS-R Delinquency												
4. ASRDS-R Total ^a	.80	.76	.75	-	.73	.82	.72	.81	.78	.74	.81	.77
5. ASRDS- R Underage Alcohol Use	.68	.75	.60	.69	-	.62	.46	.57	.59	.51	.66	.55
6. ASRDS-R Driving/ Vehicle	.63	.60	.61	.81	.61	-	.52	.59	.50	.54	.71	.55
7. ASRDS-R Theft	.52	.56	.47	.74	.45	.53	-	.56	.52	.50	.41	.47
8. ASRDS-R Cheat	.65	.63	.61	.83	.64	.66	.55	-	.60	.52	.53	.54
9. ASRDS-R Disturb	.60	.57	.58	.84	.55	.59	.55	.68	-	.50	.51	.53
10. ASRDS-R Fight	.43	.35	.44	.61	.27	.56	.35	.42	.43	-	.57	.57
11. ASRDS-R Drugs	.75	.75	.69	.75	.59	.49	.52	.50	.54	.28	-	.65
12. ASRDS-R Media	.51	.40	.52	.67	.33	.46	.43	.45	.57	.61	.37	-

Note. AUDIT = Alcohol Use Disorders Identification Test; ASRDS-R = Australian Self-Reported Delinquency Scale – Revised.

^aThe three ASRDS-R items pertaining to alcohol use were excluded from all analyses in order to reduce conceptual overlap.

‡All items are statistically significant at $p < .001$. Male correlations are presented in the top right diagonal of the table (shaded) and females in the bottom left.

Table 4
Significant Fisher's Z Tests Comparing the Magnitude of Correlations of (a) Problem Drinking and Delinquent Behaviours for Males and Females Separately and (b) Comparing across Gender

	Male <i>r</i> (<i>n</i> = 180)	<i>Z</i>	<i>p</i>	Female <i>r</i> (<i>n</i> = 132)	<i>Z</i>	<i>P</i>	Gender Difference <i>Z(p)</i>
AUDIT and Driving/Vehicle	.63			.63			0 (1)
AUDIT and Theft	.33	3.75	.001				
AUDIT and Drugs	.78	-2.86	.004				
AUDIT and Theft	.33			.52			-2.02 (.043)
AUDIT and Disturb	.55	-2.59	.010				
AUDIT and Drugs	.78	-6.61	.000	.75	-3.19	.001	
AUDIT and Media	.65	-4.07	.000				
AUDIT and Cheat	.45			.65			-2.51 (.012)
AUDIT and Fight				.43	2.53	.010	
AUDIT and Drugs	.78	-5.27	.000				
AUDIT and Media	.65	-2.73	.006				
AUDIT and Disturb	.55			.60			-.65 (.516)
AUDIT and Drugs	.78	-4.02	.000	.75	-2.25	.024	
AUDIT and Fight	.46			.43			.32 (.749)
AUDIT and Drugs	.78	-5.16	.000	.75	-4.12	.000	
AUDIT and Media	.65	-2.62	.009				
AUDIT and Drugs	.78			.75			.63 (.529)
AUDIT and Media	.65	2.54	.010	.51	3.29	.001	

Note. AUDIT = Alcohol Use Disorders Identification Test; ASRDS-R = Australian Self-Reported Delinquency Scale – Revised.