



The unique role of attachment dimensions and peer drinking in adolescent alcohol use

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ARTICLE INFO

Keywords:

Adolescence
Alcohol
Attachment anxiety
Peer drinking

ABSTRACT

Adolescent alcohol use can result in adverse health and social outcomes, including elevated risk of future substance use disorders. Insecure attachment and heavy peer use are both linked to early problematic drinking, but the precise relationship between these variables is poorly understood. Further, mixed findings in prior literature highlight the importance of distinguishing between both dimensions of insecure attachment – anxiety and avoidance. This laboratory-based study investigated whether peer use moderates the association between attachment and laboratory alcohol consumption in a sample of 120 adolescents of legal drinking age (18–21 years). The relationship between attachment and self-reported alcohol use was also investigated. It was hypothesized that both dimensions of insecure attachment would predict greater self-report and laboratory alcohol use, and that the presence of a heavy drinking peer would strengthen this relationship. Results indicated that attachment anxiety, but not avoidance, predicted self-report and laboratory alcohol use. Peer drinking did not moderate this effect. Findings emphasize the importance of investigating both attachment anxiety and avoidance, and suggest that future research should focus on mediating mechanisms between attachment anxiety and alcohol use.

1. Introduction

The onset of alcohol use typically occurs in adolescence and is associated with elevated risk of mental and physical health problems, premature death, injury, social dysfunction, and future substance use disorders (Hall et al., 2016). For these reasons, it is important to understand the risk factors for alcohol misuse to help develop effective interventions and treatments. Past research has investigated a range of environmental factors that play a role in alcohol-related problems, such as peer drinking and attachment quality. However, the interaction between these factors is unknown. This study examined the role of insecure attachment and heavy peer drinking in predicting laboratory adolescent drinking. The role of insecure attachment was also examined with self-reported drinking.

1.1. Attachment

Attachment is a key developmental construct that includes

motivational, behavioral, and interactional systems, initially between caregivers and infants (Schindler & Broning, 2015). Infant attachment quality is theorized to affect interpersonal relationships throughout the lifespan via its impact on inner working models, or schemas (Bowlby, 1977). Schemas are created during infant-caregiver attachment and further developed and revised in later relationships (Bowlby, 1973).

Ainsworth (1978) originally classified attachment styles as *secure* and *insecure* by studying infants' relationship with their primary attachment figure (e.g., mother). Further research demonstrated continuity of these attachment patterns from infancy to adulthood (Brennan, Clark, & Shaver, 1998; Hazan & Shaver, 1987). Among adolescents (from puberty to early 20s; Casey, 2015) attachment relationships involve those with parents and peers. Attachment quality can be characterized by two dimensions: anxiety and avoidance, with low levels of each dimension indicating secure attachment (Fraley & Spieker, 2003). High attachment anxiety (also called *preoccupied* or *anxious-ambivalent* attachment) is characterized by a negative schema of self. This results in fears that others will not be responsive in times of

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<https://doi.org/10.1016/j.paid.2019.05.048>

Received 24 February 2019; Received in revised form 8 May 2019; Accepted 27 May 2019

Available online 05 June 2019

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need, and a strong desire for reassurance and closeness. High attachment avoidance (or *dismissing* attachment) is characterized by a negative schema of others. This results in distrust of others, difficulty seeking support from others, and desire for independence and emotional distance. Secure attachment is characterized by low attachment anxiety and avoidance.

Attachment quality plays a crucial role in healthy development, including among adolescents (Brown & Wright, 2001). Insecure attachment has been linked to poor developmental outcomes across the lifespan, including affect dysregulation, psychological distress, low self-esteem, depression, and other internalizing and externalizing problems (Barlow et al., 2015; Gajwani, Patterson, & Birchwood, 2013; Morley & Moran, 2011; Pietromonaco, DeBuse, & Powers, 2013; Tambelli, Laghi, Odorisio, & Notari, 2012).

1.2. Attachment and alcohol

A recent meta-analysis of the longitudinal studies found insecure attachment predicts later substance use (Fairbairn et al., 2018). They found a consistent association between insecure attachment and substance use regardless of the attachment figure (i.e., mother, father, close friend, romantic partner). The authors highlight that, unlike other predictors of substance abuse (e.g., anxiety disorders, substance using peers, disinhibition), insecure attachment manifests well before substance use begins, with reliable measures available for children and adolescents. This suggests that insecure attachment could be a useful indicator of early risk for substance use problems. However, there is less consistency regarding whether both dimensions of attachment are related to substance use. Some studies indicate both forms of insecure attachment predict alcohol misuse (Danielsson, Romelsjö, & Tengstrom, 2011; Kopak, Chen, Haas, & Gillmore, 2012; Lac, Crano, Berger, & Alvaro, 2013), and others demonstrate a link to alcohol misuse with only one or the other dimension (e.g., Cooper, Shaver, & Collins, 1998; Kassel, Wardle, & Roberts, 2007; Levitt & Leonard, 2015).

Both attachment anxiety and avoidance impact one's view of self and others through inner working models or schemas, which in turn, influences their social interactions (Feeney, 2016). Given that adolescent alcohol use is predominantly a social behavior (Kuntsche, Knibbe, Gmel, & Engels, 2005; Nicolai, Moshagen, & Demmel, 2012), it is likely to be impacted through these schemas of self and others. Attachment anxiety may be related to alcohol use because it is associated with a negative schema of one's self, expressed through fears of rejection and desire for reassurance. This may lead to alcohol use in social contexts to feel acceptance and closeness (Levitt & Leonard, 2015). On the other hand, attachment avoidance may be related to alcohol use as it is associated with negative schemas of others, expressed through discomfort with intimacy and trust. This may lead to alcohol use in social context as a means to seek independence. A clearer understanding of the distinct roles of attachment anxiety and attachment avoidance in substance use is required.

1.3. Peers and alcohol

The impact of peer drinking on alcohol use is well-established (e.g., see reviews by Leung, Toumbourou, & Hemphill, 2014; Quigley & Collins, 1999). For example, in a naturalistic laboratory setting using same-sex dyads, more alcohol was consumed in the presence of a heavy-drinking peer, as opposed to a light- or non-drinking peer (Larsen, Engels, Granic, & Overbeek, 2009). Further, a review of drinking motives found most young people report drinking for social reasons, highlighting the social nature of early alcohol use (Kuntsche et al., 2005). Similarly, a recent study showed a negative association between likelihood of becoming abstinent and peer drinking (Cheng & Lo, 2017). Due to the social nature of adolescent alcohol use, it is expected that heavy peer use will increase the relationship between insecure attachment and alcohol misuse.

There is also laboratory evidence of differential susceptibility to peer influence on drinking. For those with a family history of problem drinking, the impact of peer drinking has a stronger effect (Chipperfield & Vogel-Sprott, 1988). Further, some individuals (extraverts) derive greater alcohol reward in social situations due to a higher sensitivity to positive social cues (Duchenne smiling; Fairbairn et al., 2015). This indicates that peer drinking may have a stronger influence on alcohol consumption for some individuals more than others. No study has investigated whether there is a differential effect of peer drinking on alcohol consumption as a function of attachment security.

1.4. Rationale and hypotheses

Both insecure attachment and peer influence are key psychosocial factors involved in alcohol use. Further, the link between attachment insecurity and alcohol use remains unclear, possibly clouded by a failure to incorporate key moderating influences and a need to distinguish between its two dimensions: anxiety and avoidance. This study investigated the role of insecure attachment dimensions and peer drinking on both laboratory and self-reported alcohol consumption.

It was hypothesized that insecure attachment (i.e., high anxiety or avoidance) would predict greater alcohol consumption, and that this relationship would be moderated by peer drinking. That is, those with insecure attachments in the presence of a heavy drinking peer were predicted to engage in *heavier* alcohol consumption than those without a heavy drinking peer.

2. Method

2.1. Participants

A sample of 120 adolescents (50% female) of legal drinking age (18+ years) were recruited from local university and community college campuses as part of a larger study that experimentally induced impulsivity and administered alcohol to participants (Gullo et al., 2017). This study analyzed control session data, where no impulsive state was induced. The mean age was 19.47 years ($SD = 1.12$). The following inclusion criteria were used: aged 18 to 21 years, normal or corrected-to-normal color vision, recent alcohol use (i.e., within the last two weeks prior to the study), no past/present diagnosis of alcohol use disorder, not suffering from a medical condition in which alcohol consumption is contraindicated, and not currently pregnant. Participants were reimbursed with an AUD\$40.00 gift voucher.

2.2. Measures

2.2.1. Laboratory alcohol consumption

Behavioral *alcohol consumption* was measured using a Cocktail Taste Rating Task (C-TRT; Gullo et al., 2017, modified from Chipperfield & Vogel-Sprott, 1988). The C-TRT involves participants rating 3×700 ml alcoholic drinks on different taste indices (e.g., sweetness, bitterness etc.) under the guise of exploring taste perceptions, while actually measuring total consumption (ml). The drinks are presented in transparent acrylic cocktail shakers (marked A-B-C) and are made up of vodka/soft-drink mixtures. They contained 6.6% alcohol by volume (% v/v), and were flavored lemon squash (Drink A), blood orange (Drink B), and passionfruit (Drink C). Participants were told they could sample as much of each cocktail as they needed. The experimenter left the room for an unspecified amount of time and returned after 15 min to end the task (not enough time to rate all 100 adjectives).

2.2.2. Alcohol-related problems

Self-reported hazardous alcohol consumption was measured using the alcohol substance specific involvement scale of the Alcohol, Smoking and Substance Involvement Screening Test (ASSIST, version 3.0; Ali et al., 2002). Nine items are used to screen for substance use and

severity over the past three months. In this study, only the alcohol-specific substance involvement composite (SSI Alcohol) was used. This section has been shown to distinguish non-problematic alcohol consumption, abuse, and dependence (Humeniuk et al., 2008). It has also been shown to have good test-retest reliability and internal consistency.

2.2.3. Attachment

Attachment was measured using the *Experiences in Close Relationships-Revised* questionnaire (Fraley, Waller, & Brennan, 2000). The questionnaire consists of 36 items rated on a 7-point Likert scale, from 1 (*strongly disagree*) to 7 (*strongly agree*), with high scores indicating greater anxiety or avoidance. *Attachment anxiety* comprises 18 items ('I often worry that my partner doesn't really love me'). *Attachment avoidance* comprises 18 items ('I prefer not to show a partner how I feel deep down'). Total scores were calculated by averaging responses from each scale. The scale had high internal reliability in the present study (Cronbach $\alpha = 0.92$).

2.2.4. Peer drinking

Peer drinking was experimentally manipulated. Half of the participants completed the C-TRT in the presence of a gender-matched, heavy drinking confederate, and half completed it alone, 0 = no peer, 1 = heavy drinking peer.

2.3. Procedure

Participants were instructed to avoid non-prescription drugs or alcohol 24 h prior to testing, and to fast for four hours before testing (Chipperfield & Vogel-Sprott, 1988; Miller, Melissa, & Mark, 2014). Breath samples were taken at the start of each session with a Lion Alcolmeter 500 to check that blood alcohol concentration (BAC) was zero. Questionnaires were administered followed by the C-TRT, where half of the participants completed the C-TRT in the presence of a gender-matched, heavy drinking confederate masquerading as another participant. Confederates were trained to drink 700 ml of cocktail at a standardized rate (three sips/min). This manipulation has previously been shown to increase laboratory alcohol consumption (Chipperfield & Vogel-Sprott, 1988; Gullo et al., 2017). Participants provided written informed consent and the study was approved by an institutional review board.

2.4. Data analyses

Zero order correlations between primary variables of interest were conducted. A hierarchical regression analysis was conducted to test the moderating effect of peer influence on the association between attachment and alcohol consumption. The moderating effect of peer influence could only be analyzed for laboratory drinking. Attachment anxiety and attachment avoidance were entered in step 1. Peer presence was entered in step 2. Two-way interactions were entered in step 3.

3. Results

Missing data were addressed using multiple imputation (five imputations). Descriptive statistics are presented in Table 1, and zero-order correlations are presented in Table 2.

Table 1
Descriptive statistics for primary variables of interest.

Variable	M(SD)
1. Laboratory alcohol consumption (ml)	380.88 (196.45)
2. Self-reported hazardous drinking	11.23 (6.40)
3. Attachment anxiety	3.70 (1.24)
4. Attachment avoidance	3.17 (1.16)

Table 2
Zero-order correlations for primary variables of interest.

Variable	1	2	3	4
1. Laboratory alcohol consumption (ml)		0.19	0.21	-0.12
2. Self-reported hazardous drinking	-		0.21	-0.06
3. Attachment anxiety	-	-		0.05
4. Attachment avoidance	-	-	-	

Statistically significant effects appear in bold ($p < .05$).

Table 3
Moderating effect of peer presence on the association between attachment and drinking.

	ΔR^2	p	B	$SE B$	sr^2	p
Laboratory alcohol consumption						
Step 1	0.06	0.020				
Attachment anxiety			34.52	17.13	0.047	0.050
Attachment avoidance			-21.87	17.53	0.017	0.217
Step 2	0.03	0.113				
Peer presence			55.77	35.65	0.020	0.118
Step 3	0.03	0.141				
Attachment anxiety \times peer			36.94	30.06	0.013	0.220
Attachment avoidance \times peer			-49.15	31.79	0.020	0.122
Self-reported hazardous drinking						
Step 1	0.05	0.048				
Attachment anxiety			1.10	0.49	0.045	0.024
Attachment avoidance			-0.36	0.54	0.004	0.502

Note. Statistically significant effects appear in bold ($p < .05$).

3.1. Main analyses

3.1.1. Laboratory alcohol consumption

At step 1, 6% of the variance in alcohol consumption was significantly explained by the additive model containing the direct effects of attachment anxiety and attachment avoidance (see Table 3), $F ch.(2, 117) = 4.06, p = .020$. Individually, attachment anxiety significantly positively predicted 5% of the variance in alcohol consumption, where higher attachment anxiety led to higher levels of alcohol consumption. Individually, attachment avoidance did not significantly predict alcohol consumption.

At step 2, the addition of peer presence to the model did not account for significant variance in alcohol consumption ($< 1\%$) over and above that explained by attachment in step 1, $F ch.(1, 116) = 2.55, p = .113$.

At step 3, the two-way interaction terms did not account for significant additional variance in alcohol consumption, $F ch.(2, 114) = 1.99, p = .141$. Therefore, the step 1 model containing attachment variables was retained.

3.1.2. Alcohol-related problems

A separate regression was run for self-reported alcohol consumption but, with the omission of peer influence, there was no main effect of peer influence to test at step 2, or two-way interaction to be tested at step 3. At step 1, 5% of the variance in self-reported hazardous drinking was significantly explained by the additive model containing the direction effects of attachment anxiety and attachment avoidance, $F ch.(2, 117) = 3.11, p = .048$. Individually, attachment anxiety significantly positively predicted 5% of the variance in hazardous drinking, where higher attachment anxiety led to higher levels of alcohol consumption. Individually, attachment avoidance did not significantly predict hazardous drinking.

4. Discussion

The aim of the current study was to clarify the relationship between dimensions of insecure attachment and alcohol use, including the

moderating effect of peer drinking. As hypothesized, findings indicated that attachment anxiety predicted both laboratory alcohol consumption and self-reported hazardous drinking. Contrary to hypotheses, attachment avoidance did not predict alcohol consumption on either measure, and peer drinking did not moderate these relationships. These findings suggest an important distinction between anxious and avoidant attachment in predicting risk for alcohol misuse among adolescents. Only anxious attachment predicted drinking.

There is inconsistency in past research due to use of a global “insecure attachment” construct, rather than considering attachment by its key dimensions: anxiety and avoidance. Theoretically, the discrepancy between the two dimensions may be due to different mediating mechanisms involved in externalizing problematic behavior, including alcohol misuse (Schindler & Broning, 2015). Attachment anxiety is predicted to lead to anxiety towards interpersonal relationships, while attachment avoidance leads to emotional distancing and greater reliance on self rather than others (Caspers, Yucuis, Troutman, & Spinks, 2006). Within the context of adolescence, where alcohol consumption is typically social, perhaps high scorers on attachment anxiety are more likely to engage in greater alcohol consumption as an attempt to avoid social rejection. Due to a negative self-schema, anxiously attached individuals may be more likely to seek social reassurance through engagement in normative behaviors. In the adolescent social context, drinking (and heavy drinking) is one such behavior that anxiously attached individuals may perceive significant pressure to engage in.

In contrast, individuals who are higher in attachment avoidance may be less vulnerable to social pressures to conform. Consequently, this attachment pattern may have less impact on alcohol use at this stage of development. Anxiously attached individuals are likely to be more susceptible to adopting peer norms for alcohol use. Importantly, individuals who are high on either anxiety or avoidance are insecurely attached; and therefore have poorer social and emotion regulation skills, which may confer risk for problems including substance abuse later in life (Schindler & Broning, 2015). The key difference is the way in which these issues of insecure attachment are expressed in relation to adolescent alcohol misuse. Perhaps anxiety attachment confers greater susceptibility to social pressure, while avoidance leads to indifference. This explanation is consistent with studies mentioned above that indicate only attachment anxiety (and not avoidance) leads to misuse (Cooper et al., 1998; Jones, Bounoua, Pandes-Carter, Lejuez, & Cassidy, 2015; Kassel et al., 2007). However, this is only one possible explanation and others cannot be ruled out. For example, there may be a biologically-based account, whereby individuals with higher attachment anxiety have higher reward sensitivity to alcohol. Further research is required to determine the precise mediating mechanism between anxious attachment and alcohol use.

Results also demonstrate that the presence of a heavy drinking peer did not moderate the relationship between insecure attachment and alcohol misuse. In contrast, the larger study by Gullo et al. (2017) found direct peer effects. While it is possible the discrepancy in findings may be because the current study controlled for attachment, re-running regression analyses with peer presence as the only predictor also failed to reach statistical significance ($b = 58.39$, $SE = 36.25$, $p = .107$). The more likely explanation is that, in only drawing on control session data from Gullo et al. (2017; i.e., half the data), the present study suffered from reduced statistical power. Moderation effects were of greater interest to the present study and no evidence was found for them. It may be that the experimental peer influence was too narrowly focused, whereby the dyads were same sex and had no verbal interaction for standardisation. This would be consistent with Fairbairn et al.'s (2015) findings of responsivity to specific social cues rather than just the presence of another individual. Therefore, the peer manipulation may not have resulted in a sufficiently social setting for the peer influence to have an effect on attachment inner working models. Previous studies have used pairs of friends (Larsen et al., 2010), which may be more likely to activate attachment-related schemas.

A limitation of this study is that results may not generalize to clinical populations or younger adolescents regarding risk for uptake of drinking. Future studies should investigate potential mediating mechanisms between attachment quality and previously established proximal predictors of drinking. For example, social cognitive mechanisms such as alcohol expectancies and refusal self-efficacy may be useful to focus on in the context of prevention, particularly given their role in predicting problematic alcohol use and responsiveness to psychosocial intervention (Connor, George, Gullo, Kelly, & Young, 2011; Orlando, Ellickson, McCaffrey, & Longshore, 2005). The results highlight the clinical importance of distinguishing between anxious and avoidant attachment in determining risk for alcohol misuse. Unlike most predictors of alcohol misuse, attachment is an early marker of risk. Therefore this finding that attachment anxiety, but not avoidance conveys risk may be used in targeted interventions.

Overall, the present study found that attachment anxiety predicts greater alcohol consumption in a late adolescent population. A key strength is the consistency of findings across behavioral and self-report measures of drinking. The multidimensional assessment of attachment also provides clarity on the specific role of insecure attachment, where the dimensions of anxiety and avoidance were separated. This study enhances our understanding of the role of attachment anxiety in predicting hazardous drinking across both self-report and behavioral measures.

Role of funding source

Ms. Anderson was supported by a Research Training Program stipend and a Children's Hospital Foundation (Queensland, Australia) PhD Scholarship Top-Up (RPCPHD0152017). Dr. Gullo was supported by a National Health and Medical Research Council (NHMRC) of Australia Early Career Fellowship (1036365) and a Medical Research Future Fund Translating Research into Practice (TRIP) Fellowship (1167986). Prof Connor was supported by a NHMRC Career Development Fellowship (1031909). The funders had no role in the study design, collection, analysis or interpretation of the data, writing the manuscript, or the decision to submit the paper for publication.

Contributors

Ms. Anderson and Dr. Gullo conceived the study and formulated study hypotheses. Ms. Anderson managed the literature searches, summaries of previous related work, and ran the statistical analyses. Ms. Anderson, Prof Connor, and Dr. Gullo wrote the first draft of the manuscript. All authors contributed to and have approved the final manuscript.

Declaration of Competing Interest

No conflict declared.

Acknowledgements

The authors would like to thank Adam Bulley, Edwina Francis, Michael Prowacki, Amanda Hensen, Stephen Reynolds, Erin Pownell, Alexander Fisher, and Harriet Suchall for volunteering as confederates.

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