



Full length article

# The influence of groups and alcohol consumption on individual risk-taking



Marianne Erskine-Shaw\*, Rebecca L. Monk, Adam W. Qureshi, Derek Heim

Department of Psychology, Edge Hill University, Ormskirk, Lancashire, L39 4QP, United Kingdom

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## ABSTRACT

**Background:** Research addressing the influence of alcohol and groups on risky behaviour has yielded contradictory findings regarding the extent to which intoxicated groups exaggerate or minimise risk-taking. Previous work has examined the effect of intoxication on risk-taking focusing on collective group decision-making, and to date the influence of alcohol consumption and groups on individual risk-taking has yet to be explored experimentally. The current study therefore examined the impact of intoxication and groups on individual risk-taking. **Methods:** In a mixed design, 99 social drinkers (62 female) attended an experimental session individually ( $N = 48$ ) or in groups of three ( $N = 51$ ). Individuals completed the study in isolation while groups were tested in the same room. Participants completed two behavioural measures of risk-taking: Balloon Analogue Risk Task (BART) and Stoplight Task (SLT), both before and following consumption of an alcoholic (0.6 g/kg males, 0.5 g/kg females) or a placebo beverage.

**Results:** Those who participated in groups took significantly more risks in both tasks than those in isolation. Alcohol did not increase risk-taking on either risk-taking tasks. However, those who consumed placebo were significantly less risky on the SLT, compared to baseline. No interactions were found between context and beverage on risk-taking.

**Conclusion:** The findings do not support a combined effect of alcohol and groups on individual risk-taking. Rather, results indicate that risk-taking behaviour is influenced by peer presence regardless of alcohol consumption. Targeting the influence of groups (above those of alcohol) may hold promise for reducing risk-taking behaviours in drinking environments.

## 1. Introduction

Alcohol is a social lubricant and forms the basis of a variety of social celebrations, cultural and religious events (Gordon et al., 2012). However, in addition to well-documented adverse impacts on health and well-being (World Health Organisation, 2014), research suggests that alcohol consumption can be associated with a variety of potentially harmful risky behaviours, including aggression (Ito et al., 1996), drunk-driving (Taylor et al., 2010), and sexual risk-taking (Rehm et al., 2012). Given that alcohol is frequently consumed in groups, it is noteworthy that much alcohol-related risk-taking research has been conducted on individuals in isolated contexts. While research into the impact of social contexts on alcohol-induced risk has begun to address this shortcoming, findings to date are inconsistent (Abrams et al., 2006; Sayette et al., 2012), and more research is needed to better understand how social contexts and alcohol consumption interact to shape risky behaviours. A fuller account of how the psychopharmacological effects of alcohol are shaped by different social settings to impact risk-taking behaviours may also be important for informing interventions that are sensitive to the

different contexts in which people become intoxicated.

In a rare exception to the dearth of research examining alcohol-induced risk taking in social contexts, Sayette et al. (2012) found that intoxicated groups made riskier decisions than sober groups. However, they found that risky choices did not differ between sober and intoxicated individuals when the risk-taking decisions were made in isolation. This research therefore points to a negative impact of social influences on alcohol-induced risk-taking, whereby alcohol consumption may only enhance risk-taking behaviour within groups. In contrast, Abrams et al. (2006) and Hothrow et al. (2014) found that the extent to which group members were attracted to risk appeared either not to differ (Abrams et al., 2006) or was lesser (Hothrow et al., 2014) as a function of intoxication, whereas those in socially isolated contexts appeared more risk-taking following alcohol consumption. This work therefore suggests a protective effect of groups on risk-taking associated with alcohol consumption.

Addressing these inconsistent findings, it is worthwhile to consider methodological differences regarding the contexts in which beverages were consumed between studies. Sayette et al. (2012) consistently

\* Corresponding author at: Department of Psychology, Edge Hill University, St Helens Road, Ormskirk, Lancashire, L39 4QP, United Kingdom.  
E-mail address: [marianne.erskinshaw@gmail.com](mailto:marianne.erskinshaw@gmail.com) (M. Erskine-Shaw).

administered beverages in groups, subsequently extricating some group members for individual assessment of decision-making. On the other hand, [Abrams et al. \(2006\)](#) kept testing contexts consistent throughout the study, with participants who completed the risk task alone also consuming their beverages in isolation, compared to groups who both drank and completed the task with peers. The varied drinking contexts utilised in these studies may help explain the inconsistent findings, as participants may respond differently following social drinking ([Sayette et al., 2012](#)), compared to drinking in isolation ([Abrams et al., 2006](#)).

In addition to the methodological differences between these studies, it is also important to distinguish between collective group risk-taking and group influence on individual risk-taking. Both [Abrams et al. \(2006\)](#) and [Sayette et al. \(2012\)](#) examined group risk-taking as one collective decision within the group, as opposed to group member's personal decisions. Notably, [Frings et al. \(2008\)](#) found intoxication to increase vigilance errors in individuals, whereas errors made in groups (collectively and privately by group members) remained unaffected by alcohol consumption. However, vigilance errors did appear to differ depending on whether group members made their judgements privately, or collectively. Here, collective group decisions were found to be less erroneous. Moreover, risk preferences appear to be influenced by the presence of peers to a greater extent when tasks are discussed with the group, in contrast to when group members complete tasks independently ([Centifanti et al., 2016](#)). This highlights the necessity to distinguish between collective group decisions, and individual decisions within a group. To our knowledge, group influence on individual risk-taking has not yet been examined experimentally in intoxicated groups. The impact of social drinking on individual, as opposed to collective (group), risk-taking therefore remains unclear.

Theoretically, the impact of peer presence and alcohol on risk taking behaviours may be explained via cognitive and social influence frameworks such as the alcohol myopia model (AMM; [Steele and Josephs, 1990](#)) and perceived norms ([Borsari and Carey, 2001](#)). AMM postulates that the pharmacological effects of alcohol narrow an individual's attention to the most salient cues, thereby constricting individuals' focus. This is seen to impede attempts at evaluating systematically a given situation ([Steele and Josephs, 1990](#)), resulting in increases in risky behaviour ([Lane et al., 2004](#); [Rose et al., 2014](#)). Furthermore, in social contexts the saliency of group membership may result in an alcohol-related focal narrowing of attention towards peers ([Hopthrow et al., 2007](#)), leading to subsequent behaviour to be driven by, and evaluated in light of, peer approval.

Beliefs regarding the alcohol consumption behaviours of one's social group may also be an important determinant of alcohol-related behaviours ([Borsari and Carey, 2001](#)). For instance, young adults and students in social groups often overestimate their peers' risky drinking behaviour ([Martens et al., 2006](#)). In turn, this (mis)perception has been suggested to predict behaviour as individuals attempt to match their conduct to the perceived norm ([Crawford and Novak, 2010](#); [Kenney et al., 2013](#); [Martens et al., 2006](#)). In social contexts, alcohol-related increases in attention to one's peers may thereby lead to norm-driven heightened risky drinking behaviour.

In summary, it may be suggested that the effects of alcohol are likely to enhance risky behaviour due to pharmacologically-driven myopia impairing systematic evaluation of consequences. In social contexts, a narrowed focus may be directed towards peers, influencing behaviour in line with perceived group norms, which may overestimate peer engagement in risky drinking behaviour ([Kenney et al., 2013](#); [Martens et al., 2006](#)). The effect of alcohol consumption on individual risk-taking might therefore be expected to be exaggerated in the presence of peers.

The current study, therefore, aimed to investigate the influence of group context, specifically peer presence, and alcohol consumption on individual risk-taking behaviour. We examined risk-taking behaviour both before and after consumption of 0.5–0.6 g/kg alcohol or a placebo, across two varying contexts (a group or an isolated context). The study

investigated both the independent and combined effects of groups and alcohol consumption on individual risk-taking. It was expected that (a) alcohol and (b) group context will increase individual risk-taking behaviour. Additionally, we hypothesised that (c) the combination of both alcohol consumption and group context would elevate risk-taking behaviour further.

## 2. Method

### 2.1. Design

A 2 (context: group or isolation) × 2 (beverage: alcohol or placebo) mixed design was used. Risk-taking behaviour was a repeated variable, due to measurement before and following beverages.

### 2.2. Participants

A total of 99 social drinkers (62 female, *M* age = 20.71, *SD* = 4.34) were recruited by opportunity sampling at a UK University. Recruitment was facilitated by online and campus advertisements, as well as via an online participation pool (SONA). Participants signed up to the study either individually or as a group of three (to recruit natural friendship groups). The gender of group members was recorded due to the possibility of gender composition in group contexts impacting risk-taking behaviours ([Hannagan and Larimer, 2010](#); [Karakowsky and Elangovan, 2001](#)). Six same sex groups (four female) and 11 mixed sex groups (six female-dominated) took part in this study. Participation requirements were that volunteers reported drinking alcohol with others at least once per month and were not pregnant, trying to reduce their alcohol use, or had any history of alcohol-related issues.

### 2.3. Materials and measures

#### 2.3.1. Beverage administration

The methods utilised for beverage administration were adapted from previous studies ([Abrams et al., 2006](#); [Rose and Duka, 2006](#)). Using a single blind procedure, participants were randomly assigned to one of two beverage conditions: alcohol or placebo. Prior to consumption, participants were asked to eat a strong-tasting lozenge (Fisherman's Friend) to mask the taste of the beverages. The alcoholic beverage contained 0.5 g/kg (females) or 0.6 g/kg (males) of alcohol (vodka), mixed with equal parts of orange juice and tonic water. For the placebo condition, participants were administered equal parts of orange juice and tonic water with a vodka mist sprayed over and on to the rim of the glasses. Beverages were divided between three glasses which participants consumed the contents within 10 min.

#### 2.3.2. Self-report measures

*Medical Screening* was conducted in line with the national institute on alcohol abuse and alcoholism (NIAAA) guidelines for alcohol administration. The screening assessed current health status and medications, risk of alcohol-related problems, and previous issues regarding alcohol intake.

*Alcohol Use Disorder Identification Test (AUDIT)* ([Saunders et al., 1993](#)) consists of 10 questions, which identifies harmful and hazardous alcohol use. The measure has high internal consistency (Cronbach's  $\alpha = 0.82$ ) ([Shields et al., 2004](#)).

*RT-18* ([de Haan et al., 2011](#)) consists of 18 questions measuring risk-taking behaviour. The RT-18 shows high internal consistency when used in young adult social drinkers (Cronbach's  $\alpha = 0.80$ ) ([de Haan et al., 2011](#)). The RT-18 has been implicated in predicting alcohol consumption behaviours ([de Haan et al., 2015](#); [Stamates and Lau-Barraco, 2017](#)) and it was therefore assessed to ascertain any group level differences in trait risk-taking.

*Subjective Intoxication Visual Analogue Scales (SI VAS)* are 100 mm long with anchors of 'not at all' (0 mm) and 'extremely' (100 mm).

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