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Research paper

SmartStart: Results of a large point of entry study into preloading alcohol and associated behaviours

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ABSTRACT

Background: There is a growing trend of preloading with alcohol before entering entertainment districts. It is claimed that this occurs to save money and that preloading may be a good indicator of harmful drinking and risk taking behaviours more generally. No study has collected data from a large sample as the participants entered entertainment districts and measured blood alcohol concentration (BAC) levels and self-reported drinking and risk taking behaviours in a systematic way.

Methods: In this research, police and academics worked together to gauge the breadth and depth of preloading behaviours. In all, 3039 people completed a questionnaire and were breathalysed as they entered entertainment districts in Queensland, Australia. Of those, 2751 represented people from Brisbane and this data, collected every Thursday night to Sunday morning during the warm months, was analysed.

Results: More than 79% of people reported to preload and 71% returned a BAC greater than zero, both with little difference between the genders. Of preloaders, the mean BAC was 0.071, with 'to socialise with friends' being the primary reason given for preloading. Increasing preloading BAC was related to increasing risk taking and antisocial behaviours, as well as alcohol abuse and dependence. Older people entering entertainment districts had more accurate estimates of their BAC, yet 20% of our sample did not understand how the BAC system worked. Conducting the research was associated with a higher access rate to police and a lower arrest rate in the areas of data collection in comparison to the same nights 1 year earlier.

Conclusion: Preloading is widespread and involves moderate to heavy drinking in the Australian population visiting entertainment districts. Any interventions to curb drinking behaviours and reduce violence in night time entertainment districts need to involve approaches aimed at cultural phenomena, such as preloading behaviours.

Introduction

The harmful use of alcohol causes 3.3 million deaths per year worldwide (World Health Organisation [WHO], 2014). Mechanisms of harm from alcohol consumption include both short- and long-term harmful effects on organs, intoxication leading to accidents and violence, and chemical dependence preceding socio-economic and interpersonal damage. While the amount of alcohol consumed provides an indication of likely harm, there is evidence that the pattern of drinking is also related to type and severity of harm (Rehm et al., 2003). With heavy drinking defined as imbibing 60 g of pure alcohol in one sitting (equivalent to five or six drinks), dosage responses are associated with: increased risk of most cancers associated with any drinking (e.g., oesophageal, mouth, rectal, liver, and larynx; Corrao, Bagnardi, Zambon, & La Vecchia, 2004); epilepsy (Samokhvalov, Irving, Mohapatra, & Rehm, 2010); lower respiratory infections (Rehm, Baliunas, et al., 2010); cirrhosis of the liver (Rehm, Taylor et al., 2010); and preterm birth (Rehm et al., 2004). Likewise, harm from the behavioural consequences of drinking increases the risk of road injuries and fractures to the self (Corrao, Bagnardi, Zambon, & Arico, 1999) and increases self-injury and injury to others from violence (Cherpitel, 2007). In particular, it has been noted that the risk of injury to women is elevated with any alcohol consumption, but only for men following heavy drinking (>90 g; Stockwell et al., 2002), with current guidelines stating "the lifetime risk of hospitalisation from injury is about 1 in

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10 for men and 1 in 12 for women with a drinking pattern of four drinks on an occasion about once a week" (National Health Medical Research Council [NHMRC], 2009).

A growing trend in the western world has been preloading, where people consume alcohol, either individually or in groups, before venturing into town entertainment districts (Foster & Ferguson, 2014). Studies looking at people who reported to preload have found that they drink more alcohol over the course of the night (Paschall & Saltz, 2007) and are 2.5 times more likely to be involved in violent exchanges (Hughes, Anderson, Morleo, & Bellis, 2008). They also tend to have a higher blood alcohol concentration (BAC) than non-preloaders at any point during the night once in the entertainment district, and report engaging in this behaviour to save money from the cost of alcohol in pubs and clubs compared to take-away outlets (Miller, 2013). In European studies it is estimated that around 60% of people already in entertainment districts have preloaded (Hughes et al., 2011). This is of concern as intoxication before entering a licensed premise predicts violence as measured through emergency room attendances (Moore, Brennan, & Murphy, 2011) and appears to be a growing phenomenon irrespective of the trend for younger cohorts to drink less in general (Livingston et al., 2016).

Until now all preloading estimates have been acquired either by retrospective survey completion when not in the entertainment precincts or incidentally as part of a cross sectional survey of people at different times of the night. Without a reliable estimation of the degree, type and effects of preloading, before even entering the entertainment districts, it is not possible to plan for public health interventions or emergency services utilisation. Further, the reasons for preloading are unclear. In order to explore this issue further one would also need to look at what constitutes preloading. Preloading before entry into an entertainment district may include drinking at home, a friend's house, in the lobby bar of a hotel in which one is staying, and can even include drinking at a suburban pub/bar before "going into the city". This has not been systematically looked at before and needs further investigation, at the same time as measuring the estimated number of standard drinks (a drink containing 10 g of alcohol) people have had and their Blood or Breath Alcohol Concentration (BAC). Breath alcohol concentration is a quick and accurate proxy for blood alcohol concentration and relates to the number of grams of alcohol per 210 l of breath (equivalent to grams of alcohol per 100 mm of blood).

Miller (2013) conducted a multi-site mixed methods cross-sectional study in Australia, using short patron interviews and sessions of structured observations—all conducted near licensed venues in large cities (Melbourne, Geelong, Sydney, Perth and Wollongong) predominantly between the hours of 10 p.m. and 3 a.m. They asked to interview every 3rd person who passed them, irrespective of how long they had been in the entertainment district, and breathalyser tests were also given. Over 7000 participants were included, although it is not clear how many people refused to participate. It should also be noted that "patron interviews will not be conducted with people who are heavily intoxicated" (p. 72, Miller et al., 2013). This condition was obviously stipulated to satisfy ethical concerns regarding the safety of research assistants but is an obvious limitation to a study into the level of intoxication in entertainment precincts. They found a median BAC level of only .054% across the sites and across time of night.

The author reports that the major reason for preloading (provided by 67% of respondents) was to save money, with only 8.5% relating their preloading to socialisation and 13.9% 'for fun'. However, besides the sampling bias, this data appears to have been acquired retrospectively, once the majority of respondents had already gained access to the entertainment districts and had begun to pay higher prices in the clubs. Such retrospective reasoning by the participants requires replication if the high-street price of alcohol is to be used as the preferred method to combat preloading behaviours. It was also claimed that 23% of the entire sample had consumed energy drinks during the night at some point and that, of the 67% of males and 62% of females who preload, 26% had consumed energy drinks (Miller, 2013). In effect, they found that approximately 19% of preloaders directly mixed their drinks with alcohol. However, the definition of what counted as an energy drink is unclear and it seems that this may have included caffeinated drinks such as cola. Further, it appears that these data are, as outlined above, retrospective reports by non-inebriated patrons already drinking in the entertainment district. Without using a sample of participants entirely composed of those who are still attempting to enter the city entertainment districts, we are unclear whether these figures are the product of participants' retrospective meaning-making, which is influenced by extraneous factors and questioning strategy. We are interested whether these figures hold when people are interviewed before they have entered the entertainment districts and also includes those obviously inebriated. Further, we are unclear whether intoxication increases during preloading when energy drinks are used as mixers, as has been argued from meta-analyses (Verster, Benson, Johnson, & Scholey, 2016). This is not to say that the energy drinks increase theeffects of alcohol, but rather that people who mix energy drinks with their alcohol tend to consume more alcohol compared to those who do not mix energy drinks. That said, it has also been suggested (Verster et al., 2016) that those who mix energy drinks with their alcohol drink less alcohol than when those same people are not mixing energy drinks. In effect they argue for a volumetric reason for why energy drink users have higher alcohol readings: people can get more inebriated (and quicker) when they drink spirits.

In the current study we conducted the first specific investigation into the prevalence of preloading before entry to city entertainment precincts. We aimed to assess blood alcohol concentration in people on arrival in the entertainment precincts, analysed by time of arrival, their subjective perspective on how inebriated they felt, why they preloaded, their use of energy drinks, and dependence and impairment ratings. We also aimed to gauge risk taking behaviours such as prevalence of being in fights and casual sexual encounters, and prevalence of harm as measured through next day memory loss and likelihood of dependence through the concern of friends. We wanted to have an unbiased sample, assessing people obviously intoxicated, and thus included police into the study design. We also gauged the effect of our study by looking at arrest rates in close proximity to our data collection points in comparison to the previous year arrest rates. As an operational outcome of the research was to increase positive engagement by the police with members of the public, we also collected data on calls to the police for assistance over the two year period up until 1st January 2015.

Method

Participants & procedure

All study procedures were cleared by the Griffith University Human Research Ethics Committee (ref: PSY/71/14/HREC). Participants were 2751 people entering the entertainment districts of Brisbane on a Thursday, Friday or Saturday night. For comparison with a holiday destination and a regional area, further participants were obtained from the 'party zone' of the Gold Coast (n = 137; Collected over three nights from Thursday the 5th to Saturday the 7th February 2015) and the mining town of Mackay (n = 151, Collected over two nights from Friday the 12th to Saturday the 13th December 2014), resulting in 3039 participants from Queensland, Australia. Demographics and results are presented in Table 1.