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Associations between alcohol consumption patterns and attitudes towards alcohol interlocks

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ABSTRACT

Background: Drink-driving and alcohol-related crashes are a significant problem globally. Alcohol interlocks are used to prevent drivers with a blood alcohol concentration above a pre-determined level from starting their vehicle, making the technology highly effective in preventing drink-drive episodes. While alcohol interlocks are commonly used in drink-drive offender groups, their broader use as a preventative road safety strategy is considered increasingly feasible. In this context it is important to understand attitudes towards the technology, and to investigate whether these attitudes vary according to alcohol consumption patterns as this influences the acceptability of a broad-based preventative alcohol interlock program.

Methods: A representative sample of 2994 Australian drivers participated in an online cross-sectional survey. Participants reported their alcohol consumption, drink-drive behaviour and attitudes towards the use of alcohol interlocks for personal use and for drink-drive offenders.

Results: Half of the sample stated that alcohol interlocks would be of use personally. Seventy-four percent of high-risk drinkers (defined by an AUDIT score ≥ 20) stated they would find the technology personally useful when compared to 49% of low-risk drinkers (AUDIT ≤ 7). Overwhelmingly, more than 80% of participants agreed with the mandatory instalment of alcohol interlocks and compulsory clinical interventions for drink-drive offenders, with more low-risk drinkers supporting this than the high-risk drinkers.

Conclusions: While there were mixed opinions regarding the perceived personal usefulness of alcohol interlocks, higher-risk drinkers were most likely to perceive interlocks as being of use for themselves. This high-risk group however, was less likely to provide support for clinical interventions and additional re-licensing requirements aimed at eliciting changes in drinking behaviour. These findings have important implications for drink-drive offender relicensing and the likely success of drink-driver education, and interventions aimed at curbing risky alcohol consumption.

1. Introduction

Alcohol is widely consumed throughout the world and forms part of many people's daily activities (Allan et al., 2012). For people aged 15 years and older, the average per capita consumption of alcohol is approximately 10.0 L per year with consumption rates varying considerably across the globe (World Health Organization [WHO], 2014). The harms associated with excessive alcohol consumption are well documented (WHO, 2014). These include injury to the drinker which can manifest as alcohol dependence, chronic health conditions, associated mental health problems, as well as harms to others (Australian Institute of Health and Welfare [AIHW], 2014).

Driving after drinking represents a further harm, placing not only the drink-driver at increased risk of injury or death, but also other road users, and is a major cause of road crashes globally (Achermann Stürmer, 2016; WHO, 2015). In the US, Europe and Australia, it has been estimated that approximately 25%–30% of road deaths result from alcohol-related crashes (Australian Transport Council [ATP], 2011; Fitzharris et al., 2015; Global Road Safety Partnership [GRSP], 2007). The increased risk of crash-involvement and drink-driving is well established, with studies showing that drivers with a blood alcohol concentration (BAC) of 0.05 are 40% more likely to be involved in a crash when compared to a driver with a BAC of 0.00–0.02 (Allsop, 1966; Borkenstein et al., 1974). Beyond 0.05, this crash risk increases exponentially (WHO, 2015). With 1.25 million people killed globally as a result of road crashes and alcohol playing such a significant part, there is a clear need to focus on prevention strategies (WHO, 2015).

Despite the known risks associated with drink-driving, large-scale European and American research has revealed that 11–12% of respondents reported drink-driving in the last twelve months when they

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were under the influence of alcohol (Substance Abuse and Mental Health Administration [SAMSA], 2014), and when they believed they may have been over the legal limit (Achermann Stürmer, 2016). Recent Australian research found that 12.2% of recent drinkers (defined as drinking in the last twelve months) reported driving whilst under the influence of alcohol (AIHW, 2014). These studies demonstrate that drink-driving is a relatively common occurrence internationally (AIHW, 2014; Achermann Stürmer, 2016). Based on these statistics, it is clear that investigating avenues for prevention is a necessary step (Delaney et al., 2006; Fitzharris et al., 2015).

Alcohol interlocks are a technological solution aimed at the driver, requiring a breath sample each time the vehicle ignition is activated. Interlocks operate either as an advisory or intervening device. *Advisory* interlocks notify the driver that they are over the legal limit, however they do not prevent the vehicle from starting whereas, *intervening* interlocks prevent the car from starting when the driver is over the prescribed limit (Fitzharris et al., 2015). Intervening interlocks are highly effective in both identifying drivers exceeding a prescribed BAC level and preventing them from drink-driving. This addresses limitations of other road safety countermeasures (e.g., random breath testing) which rely on the driver being detected once they have already started driving (McCartt et al., 2010).

Whilst repeat drink-drivers account for approximately one-third of drink-drivers, the majority of people detected drink-driving are first time offenders (Boorman, 2013). This does not necessarily mean these first time offenders have not previously driven when exceeding the legal BAC limit; rather it is the first time they have been detected. This being the case, alcohol interlocks are increasingly being considered as a preventative drink-drive strategy, and are either required or strongly encouraged to be fitted to government and/or commercial vehicles in the US, Europe, Canada, Australia and NZ (Casanova-Powell et al., 2015; Fitzharris et al., 2015; Houwing, 2016).

There is recognition that the widespread installation of alcohol interlocks would bring considerable road safety benefits, however most current programs are targeted towards high BAC offenders (Fitzharris et al., 2015). In seeking to expand alcohol interlocks for more widespread use, a greater understanding of community attitudes towards the technology is required (Fitzharris et al., 2015; McCartt et al., 2010; Shults and Bergen, 2012). Such information would be of value in determining the appropriate alcohol interlock program policy settings and what implementation barriers might exist.

While there has been considerable research into the attitudes of the community towards alcohol interlocks being required as part of relicensing for convicted drink-driving offenders, there is less research that has investigated public support for the installation of interlocks for all drivers. Likewise, little is known about community attitudes towards the fitment of alcohol interlocks for drivers of particular vehicles or licensing conditions (e.g., truck drivers, probationary licence).

The existing research indicates strong public support for the mandatory installation of interlocks for offenders and repeat offenders, with studies showing that between 70 and 80% of participants agree with their fitment (AAA Foundation for Traffic Safety, 2013; Buttler, 2016; McCartt et al., 2010; Ministry of Transport, 2015; Munnich and Loveland, 2011; Shults and Bergen, 2012). However, less support has been found in studies examining attitudes towards alcohol detection technology in new vehicles and for all drivers. For instance, McCartt et al. (2010) found that only 42% of their American sample would like the technology in their next vehicle, and similarly, McInturff and Harrington (2006) reported that only 58% of drivers supported smart vehicle alcohol technology. The main barriers for those not supporting the initiative were concerns regarding cost, privacy, or the redundancy related to not consuming alcohol and/or not engaging in drink-drive behaviour (McCartt et al., 2010).

There are important sex differences in the level of support for alcohol interlocks and related technologies, with females generally being more in favour (McCartt et al., 2010; Munnich and Loveland, 2011; Shults and Bergen, 2012). Alcohol consumption patterns are also seen to be a significant determinant in the acceptance of alcohol detection technologies. In one study, McCartt et al. (2010) found that drivers who consumed more than four drinks per week were less supportive of alcohol detection technologies, as were participants who claimed to have had "too much to drink" within the past month (Debinski et al., 2014; Shults and Bergen, 2012). It is important to consider that those participants providing the lowest levels of support may be placed at the greatest risk of injury and harm (Debinski et al., 2014).

Although the awareness surrounding the dangers of drink-driving has increased over time, a considerable number of people still continue to engage in this behaviour (Fitzharris et al., 2015; Transport Accident Commission, 2016). With alcohol interlock technology being shown to be effective in preventing drink-driving, and with new less invasive interlock technologies under development, it is important to examine attitudes towards its use in vehicles. Currently, relatively little is known about attitudes towards alcohol interlocks held by drivers – particularly as a preventative road safety program focussed on non-offenders, the types of drivers who would adopt or reject the technology, and whether there is any differential level of support for particular road user groups being required to have alcohol interlocks fitted. A further important question is how these attitudes are modified by alcohol consumption patterns, particularly when exploring ways to reduce drink-driving.

1.1. Aim

This study aims to examine public attitudes towards alcohol interlocks in an Australian sample, and whether these attitudes differ according to an individual's alcohol consumption patterns.

2. Methods

2.1. Survey procedures and participants

The Transport Accident Commission (TAC), Victoria and the Monash University Accident Research Centre (MUARC) developed a Community Engagement and Social Acceptability survey to measure self-reported driving behaviours of Australian drivers as well as their attitudes towards road safety. The survey was administered through Ipsos Social Research Institute to members of their online panel. A stratified sampling strategy was used with predetermined age, sex and jurisdiction targets set in order to obtain responses from a representative sample of the Australian adult population (Stephens and Fitzharris, 2016). The survey was administered across two phases. Data reported here are from both phases. A total of 5656 participants completed Phase 1, with 30% (n = 1706) of those opting out of Phase 2. Of the 3950 distributed Phase 2 surveys, 2994 were returned and formed the final sample (a dropout rate of 24%).

2.2. Measures

2.2.1. TAC community engagement and social acceptability survey phase 1

Participants provided demographic information (age, sex, licence status) and responded to questions about their own driving behaviour and attitudes towards current and potential road safety initiatives. Relevant to this paper, participants were asked how frequently they had driven or ridden in the past two years when they suspected they may be over the legal BAC limit (6-point scale; 1 = never, 2 = hardly ever, 3 = occasionally, 4 = quite often, 5 = frequently, 6 = all the time). Participants were provided with a brief description of the alcohol interlock technology and then asked whether they would find the device personally useful to them as a driver: *'Yes – to prevent the car from starting if I am over the limit'* (intervening), *'Yes – but only to let me know if I am over the limit, not to prevent the car from starting'* representing the interlock (advisory), *'No'*, *'Do not know/unsure'* and *'I do not drive'*. Questions also sought views on the mandatory installation of interlocks