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Multiple "Lower BAC" offenders: Characteristics and response to remedial interventions☆

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ABSTRACT

Background: In recent years, there has been increasing attention to "lower BAC" drinking drivers, typically those whose blood alcohol content (BAC) is under the legal limits defined in criminal law. In 2009, legislation was enacted in Ontario, Canada that enabled police to issue roadside license suspensions to individuals caught driving with BAC between 0.05% and 0.08%, known as the "warn range". Multiple warn range (MWR) offenders are required to attend the *Back on Track* (BOT) remedial measures program. This study aimed to provide: (1) a preliminary characterization of MWR drivers charged under warn range legislation; and (2) an initial assessment of outcomes associated with BOT participation among MWR offenders.

Methods: A subsample of 727 MWR offenders was drawn from program records, and compared to samples of 3597 first-time *Criminal Code* (CC) offenders (those caught driving with a BAC of 0.08% or higher) and 359 second-time CC offenders. To provide an initial assessment of outcomes associated with BOT participation, another subsample consisted of 394 MWR participants from whom pre- and post-workshop questionnaires were collected and successfully matched using probabilistic matching processes.

Results: Similarities in demographic profile and driving history between MWR and first-time CC participants were apparent. MWR offenders scored higher on risk of problem drinking and drink-driving recidivism than either of the CC offender groups. Second-time CC offenders scored higher on these measures than first-time CC offenders. Following BOT participation, MWR participants demonstrated positive change including improved knowledge of and intentions to avoid drink-driving.

Conclusions: MWR offenders share a similar demographic profile to that of first-time CC offenders and they report significantly higher risk of problem drinking and recidivism. MWR offenders may include high-functioning problem drinkers who are likely to continue drink-driving and who may escalate to a CC drink-driving offense. Like CC offenders, MWR offenders benefited from BOT participation.

1. Introduction

Per se laws set specified legal limits on blood alcohol content (BAC) permissible when operating a motor vehicle. *Per se* legislation is considered the foundation of deterrence-based approaches to the prevention of alcohol-impaired driving (Voas and Lacey, 1990; Wickens et al., 2013). The introduction of *per se* legislation in many jurisdictions around the world followed years of scientific efforts dedicated to developing a reliable measure of alcohol in the body, and linking this measurement to impairment of driving-related skills and increased collision risk (Homel, 1988; Ross, 1982). Canada established its current and federally applicable *Criminal Code* (CC) BAC limit of 0.08% in 1969 (Chamberlain and Solomon, 2002). Since the introduction of Canada's *per se* legislation, condemnation of alcohol-impaired driving has become engrained in mainstream culture, and evidence suggests that the law has been effective in reducing impaired driving and resulting harms (Asbridge et al., 2004).

Subsequent research has established that alcohol impairment of driving-related skills and increased collision risk begin at BAC levels lower than the CC level of 0.08% (Chamberlain and Solomon, 2002; Mann, 2002). Drivers at these lower BAC levels (*i.e.*, less than 0.08%) are often referred to as "lower BAC" drivers. In recognition of the

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impairment and increased collision risk seen at these lower BAC levels, many jurisdictions have reduced their legal BAC limit to 0.05% or lower or created new offenses for drivers with BACs in this range. Evaluations suggest that these measures have resulted in further reductions in the number of alcohol-impaired drivers on roadways and the number of associated crashes, injuries, and fatalities (Andreuccetti et al., 2011; Desapriya et al., 2007; Mann et al., 2001; Otero and Rau, 2017).

On May 1, 2009, legislation was enacted in the province of Ontario that enables the police to issue roadside license suspensions to individuals caught driving with a BAC between 0.05% and 0.08%, known as the "warn range". All provinces in Canada, with the exception of Québec, have implemented sanctions for lower BAC drivers (Canadian Centre on Substance Abuse, 2016). In Ontario, consequences for drivers apprehended with a BAC in this range vary depending on the number of previous infractions in the preceding five years. For the first infraction, the driver is given a 3-day license suspension and a $150 monetary penalty. For the second infraction, the driver is given a 7-day license suspension, a $150 monetary penalty, and is required to attend the education workshop offered by Ontario's remedial measures program. For the third infraction, the driver is given a 30-day license suspension, a $150 monetary penalty, and is required to attend the treatment workshop offered by Ontario's remedial measures program. The driver also faces a 6-month ignition interlock license condition. All subsequent infractions within a 5-year period face the same consequences as a third offense, but with the addition of a mandatory medical evaluation. An evaluative review of the introduction of this warn range program showed that it significantly reduced the number of people injured or killed in drink-driving collisions by 17% (Byrne et al., 2016). Beneficial effects of these lower BAC laws have been observed in other Canadian provinces as well (Blais et al., 2015).

In 1998, Ontario introduced a remedial measures program, called Back on Track (BOT), for drink-driving offenders. At that time, and since then, evidence has shown that participation in remedial measures programs has beneficial effects on subsequent recidivism and health indicators (*e.g.*, Brown et al., 2010; Mann et al., 1988, 1994; Wells-Parker et al., 1995, 2009; Wickens et al., 2013). Completion of BOT is required before an individual convicted of a CC impaired driving offense is eligible for reinstatement of unrestricted driving privileges. The structure of the program is determined by provincial mandate. Drivers convicted of a CC impaired driving offense are required to complete a web-based assessment measuring future risk of impaired driving, including severity of substance use and related problems. Results of this assessment are used to differentially assign drivers to an education or treatment workshop. Six months following completion of the workshop, participants are required to complete a follow-up interview. This interview is designed to reassess driving risk, substance-related problems, attitudes, and behaviors following participation in the BOT program. This program structure is consistent with best practices recommended by Health Canada (2004). Evaluations of this program indicate that it has reduced alcohol and drug use and related social and health problems among participants (*e.g.*, Flam-Zalcman et al., 2013; Stoduto et al., 2014) and that it has significantly reduced the recidivism rate among convicted impaired drivers in Ontario by about a third (Ma et al., 2015). As mentioned previously, individuals with a second warn range offense in five years are required to complete BOT's education workshop, and individuals with a third warn range offense are required to complete BOT's treatment workshop (but in neither of these cases are individuals required to complete the assessment or the follow-up).

There is an ongoing debate within the community of road safety researchers concerning the characterization of alcohol-impaired drivers (*e.g.*, Chamberlain and Solomon, 2001; Voas et al., 2006). It has been argued that a significant number, if not a majority, of drinking drivers suffer from a substance use disorder (Baker et al., 2002; Vingilis, 1983). There has thus been speculation that legislation targeted at the lower BAC driver (such as Ontario's warn range legislation) may be ineffective, as it may fail to address problem drinkers who are responsible for most occurrences of drink-driving (cf., Grant, 2010; Voas et al., 2006). It has been suggested that lower BAC laws like Ontario's warn range legislation would apprehend primarily normative social drinkers, who likely experience lower rates of substance abuse and fewer related problems than those apprehended at higher BAC levels, including those convicted of a CC impaired driving offense (cf., Chamberlain and Solomon, 2001; Grant, 2010). By extension, this may suggest that warn range drivers represent a lower risk group that may not benefit from the BOT workshop in the same way that the CC offenders do (Ma et al., 2015; Sharpley et al., 2007; Stoduto et al., 2014; Wickens et al., 2018a). However, existing evaluations of lower BAC laws have identified subsequent reductions in alcohol-related crashes, injuries, and fatalities (Andreuccetti et al., 2011; Desapriya et al., 2007; Mann et al., 2001; Otero and Rau, 2017), suggesting that lower BAC drivers may not differ extensively from CC offenders and may benefit from participation in the same remedial programming. Obtaining additional evidence about the nature of the warn range population should therefore provide valuable information for the development and improvement of measures to prevent impaired driving in general.

The purpose of the current study was two-fold: (1) to provide a preliminary characterization of Ontario drivers charged with second or third offenses under the province's warn range legislation, and; (2) to provide an initial assessment of outcomes associated with BOT workshop participation among these repeat warn range offenders. In pursuing these objectives, we created two subsamples of multiple warn range (MWR) clients based on currently available data. The first subsample was created to examine the demographic characteristics of MWR offenders, including a comparison to both first-time and second-time CC offenders. As well, differences in assessed levels of risk were compared across the three groups. The second subsample was drawn to examine the drink-driving attitudes, knowledge, and behaviors of MWR offenders before and after participation in the BOT workshop. This subsample was also used to assess post-workshop changes in perceived self-efficacy to avoid future incidents of drink-driving, and offenders' reported levels of nervousness and sadness, which have been shown to affect drink-driving behavior (Wells-Parker et al., 2009).

2. Materials and methods

2.1. Subsample 1 – sample characterization

The participants included in the first subsample were 727 MWR offenders who voluntarily completed a client information form when they registered between May 2011 and June 2014. During this time, an estimated 3000 MWR offenders registered for the program for an estimated participation rate of about 24%. For the first two years of this period, participants received a copy of the client information form when they registered, and brought the completed forms in when they completed their workshop. The option to complete the form online was introduced in January 2014. Because of the nature of the data collection process, it is not possible to be certain exactly how many MWR clients had the option of participating in the voluntary survey, so this participation rate must be treated as an estimate only.

For comparison purposes, samples of 3597 first-time CC offenders, and 359 second-time CC offenders, who completed assessments between January 2012 and June 2012 were drawn from program records.

2.2. Subsample 2 – assessment of outcomes

The participants included in this subsample were 394 individuals from whom pre- and post-workshop questionnaires were collected and successfully matched using probabilistic matching processes starting from May 2011 up to September 2012. Of these participants, 363 completed the education workshop and 31 completed the treatment workshop. During this time period, an estimated 1000 MWR offenders completed the BOT program, suggesting that about 39% of participants