

DRINKING AND DRIVING: BEHAVIORS OF MOTORCYCLISTS STOPPED AT THE "OPERATION DRY LAW"*

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ABSTRACT: The objective of this study was to describe drinking-and-driving behaviors among motorcyclists stopped by the Operation Dry Law (Operação Lei Seca), an anti-drink driving campaign. A descriptive study was conducted with a non-probabilistic sample of motorcyclists stopped in the city of Rio de Janeiro in 2012, who answered a socio-demographic questionnaire about alcohol use, involvement in traffic accidents and their drink-driving behavior before and after the enactment of the Dry Law (Lei Seca).Of the 94 motorcyclists interviewed, 61 answered that they had already been involved in a traffic accident and 11 of them had consumed alcohol prior to the accident. There was a decline of the drink-driving behavior by 81% after the enactment of the Dry Law. Therefore, it is possible that the enforcement actions of Operation Dry Law may have contributed to the decline of the drink-driving behavior.

DESCRIPTORS: Automobile driving; Motorcycles; Traffic accidents; Alcohol drinking; Descriptive epidemiology.

BEBER E DIRIGIR: COMPORTAMENTOS DE MOTOCICLISTAS ABORDADOS PELA OPERAÇÃO LEI SECA

RESUMO: O objetivo deste estudo foi descrever comportamentos relacionados ao beber e dirigir entre motociclistas abordados pela Operação Lei Seca. Foi realizado estudo descritivo com amostra não probabilística de motociclistas abordados na cidade do Rio de Janeiro, em 2012, que responderam questionário com informações sociodemográficas, sobre uso de álcool, envolvimento em acidentes de trânsito e o comportamento de beber e dirigir, antes e depois da Lei Seca. Dos 94 motociclistas entrevistados, 61 referiram já ter se envolvido em um acidente de trânsito e 11 destes apontaram o uso de álcool previamente ao acidente. Houve declínio do comportamento de beber e dirigir após a promulgação da Lei Seca (-81%). Por isso, é possível que as ações de fiscalização da Operação Lei Seca tenham contribuído para o declínio do comportamento de beber e dirigir.

DESCRIÇÕES: Condução de veículo; Motocicletas; Acidentes de trânsito; Consumo de bebidas alcoólicas; Epidemiologia descritiva.

BEBER Y CONDUCIR: COMPORTAMIENTOS DE MOTOCICLISTAS ABORDADOS POR LA OPERACIÓN DE LEY SECA

RESUMEN: O objetivo de ese estudio fue describir comportamientos referentes al beber y conducir entre motociclistas abordados por la Operación Ley Seca. Fue realizado estudio descriptivo con muestra no probabilística de motociclistas abordados en la ciudad de Rio de Janeiro, en 2012, que contestaron cuestionario con informaciones sociodemográficas, sobre uso de alcohol, participación en accidentes de tránsito y comportamiento de beber y conducir, antes y después de la Ley Seca. De los 94 motociclistas entrevistados, 61 afirmaron haber participado en accidente de tránsito y 11 de estos apuntaron el uso de alcohol previamente al accidente. Hubo declinio del comportamiento de beber y conducir después de la promulgación de la Ley Seca (-81%). Así, es posible que las acciones de fiscalización de la Operación Ley Seca tengan contribuido para el declinio del comportamiento de beber y conducir.

DESCRIPTORES: Conducción de vehículo; Motocicletas; Accidentes de tránsito; Consumo de bebidas alcohólicas; Epidemiología descriptiva.

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INTRODUCTION

Worldwide, it is estimated that 1.2 million people died and other 20 to 50 million were injured due to traffic accidents in 2010. Pedestrians, cyclists and motorcyclists comprise the most vulnerable groups, representing 46% of deaths by this cause⁽¹⁾. In Brazil, there was an increase of 820% in the mortality rate of motorcyclists between 1991 and 2007⁽²⁾.

Several studies consider alcohol consumption as one of the main factors contributing to traffic accidents, since half of the fatal victims present evidence of this substance prior to the event^(1,3-4). A study conducted by the Clinics Hospital of the Medical School of the University of São Paulo in 2013, aiming to identify the causes of traffic accidents involving motorcyclists in the western area of the city of São Paulo (Brazil), identified that 7.1% of the 326 analyzed victims had consumed alcohol before driving⁽⁵⁾.

In Brazil, Law No. 11,705⁽⁶⁾, known as Dry Law (Lei Seca, in Portuguese), was enacted on 19 June 2008, with the aim to prohibit the consumption of alcoholic beverages by motor vehicle drivers. Law No 12,760, enacted on 20 December 2012⁽⁷⁾, made the Dry Law even more severe, with an increase in the fine and the use of video, testimonial evidence or other means as intoxication evidence.

Considering this, since March 2009, the government of the state of Rio de Janeiro has conducted Operation Dry Law (Operação Lei Seca, in Portuguese), approaching hundreds of drivers in high traffic public roads in the capital city, the metropolitan area and the Baixada Fluminense (a region of the state of Rio de Janeiro), aiming to enforce compliance with the current traffic laws⁽⁸⁾.

Regarding the influence of alcohol consumption in traffic accidents and the increase of motorcyclists as fatal victims of these accidents in Brazil⁽²⁾, the aim of the present study was to describe drink-driving behaviors among motorcyclists stopped at the Operation Dry Law in the city of Rio de Janeiro.

METHODS

A descriptive study was conducted with a non-probabilistic sample of motorcycle drivers stopped at the Operation Dry Law in selected high traffic roads of the northern area of the city of Rio de Janeiro, Brazil. Between 10:00 p.m. and 3:00 a.m. of five Fridays in the months of August and September 2012, motor vehicle drivers

were approached and questioned by properly identified teams of the operation, made up of officers of the Rio de Janeiro Military Police and the Traffic Department (DETRAN, as per its acronym in Portuguese).

The choice of vehicle to be stopped was not systematic, being conducted randomly and exclusively by military police officers. When approaching the vehicle driver, the military police officer informed the amendments introduced in the Brazilian Traffic Code (CTB, as per its acronym in Portuguese)⁽⁹⁾ with the enactment of the Dry Law, and asked the driver for the vehicle certificate of registry and licensing and the driver's license (CNH, as per its acronym in Portuguese), for evaluation by a DETRAN officer in a service tent, where the conductor, if agreed, was submitted to a breathalyzer test. If the test result was negative, the driver was released; those who were under the influence of alcohol fell under the Brazilian Traffic Code⁽⁹⁾.

After the evaluation at the tent, a properly trained interviewer for collection of data approached the motorcyclist, informing him about the nature and scopes of the present study. All the 94 motorcyclists stopped at Operation Dry Law in the researched period were approached, who agreed to participate in the study and answered a questionnaire enunciated by an interviewer. All interviews were conducted in a private place in the service tent, without the presence of third parties.

A questionnaire with the following variables for data collection was used: gender (male or female); age group (18-28, 29-39 or ≥ 40 years); education (complete elementary school, complete high school or complete undergraduate degree); time of issue of the type A driver's license— which enables motorcycle conduction (1-5, 6-10, 11-15 or ≥ 16 years); alcohol use (yes or no); reported traffic accident in life (yes or no); alcohol use in the reported traffic accident (yes or no); motorcycle driving after alcohol use before and after the Dry Law (yes or no); and result of the breathalyzer test type ALC SMART-BFD-30 (positive if >0 , or negative). The individual who answered that was currently consuming this substance was classified as an alcohol user, regardless of the frequency of use and amount usually consumed.

The software Epi-Info version 3.5.1 was used for the description of variables and calculation of the percentage variation, to evaluate drink-driving behavior before and after the enactment of the Dry Law.

The development of the present study was approved by the Research Ethics Committee of the Anna Nery School of Nursing/School of São Francisco de Assis Hospital of the Federal University of Rio de Janeiro, under protocol number 062/2010.

RESULTS

The sample was predominantly male with almost half of the individuals in the age group of 29 to 39 years and having completed high school. Among all participants, 37 had a type A driver's license for less than five years and 46 assumed being alcohol users. It is worth mentioning that the result of the breathalyzer test was negative for all individuals (Table 1).

More than half (64.9%) of the motorcyclists answered that they had already been involved in traffic accidents, with 11 of them assuming alcohol use prior to the reported traffic accident (Table 2).

Table 1 – Socio-demographic characteristics, alcohol use and result of the breathalyzer test among motorcyclists stopped at the Operation Dry Law. Rio de Janeiro, Brazil, 2012 (n=94)

Variables	N	%
Gender		
Male	89	94.7
Female	5	5.3
Age group		
18-28	30	32.0
29-39	43	45.7
≥ 40	21	22.3
Education		
Complete elementary school	15	16
Complete high school	44	46.8
Complete undergraduate school	35	37.2
Time of issue of type A driver's license		
1-5	37	39.3
6-10	31	33.0
11-15	20	21.3
≥ 16	6	6.4
Alcohol use		
Yes	46	48.9
No	48	51.1
Breathalyzer test		
Positive	-	-
Negative	94	100

Regarding the drink-driving behavior of motorcyclists, results show a decline of 81% after the enactment of the Dry Law (Table 3).

Table 2 – Reported traffic accident and alcohol use in the accident among motorcyclists stopped at the Operation Dry Law. Rio de Janeiro, Brazil, 2012 (n=94)

Variables	N	%
Traffic accident		
Yes	61	64.9
No	33	35.1
Total	94	100
Alcohol use in the traffic accident		
Yes	11	18
No	50	82
Total	61	100

Table 3 – Motorcycle driving after alcohol use before and after the enactment of the Dry Law among drivers stopped at the Operation Dry Law. Rio de Janeiro, Brazil, 2012 (n=94)

Motorcycle driving after alcohol use	Before the Dry Law	After the Dry Law	Variation
	N	N	(%)
Yes	27	5	-81
No	21	41	95
Total	48	46	-

DISCUSSION

Although none of the participant motorcyclists in the present study had a positive result in the breathalyzer test, the drink-driving behavior after the enactment the Dry Law was reported by one tenth of those who currently consume alcohol. However, after its enactment, there was an increase of 95% in non-driving behavior after alcohol use among the approached motorcyclists.

It is believed that a positive blood alcohol concentration would have been frequently observed, if there were not available tools in social networks or other means in which motorcyclists could obtain information about places where the operation is being conducted, such as smartphone applications. That is because it is possible that those individuals who would drive after consuming alcohol, changed their route by checking these applications.

Regarding the reported drinking behavior after consumption of alcohol, the results of the present study are higher (twice) than those observed by *Vigitel Brasil 2012* (Protective and Risk Factors for Chronic Diseases by Telephone Survey), in the city of Rio de Janeiro, in which 4.6% of the participants enabled to drive motor vehicles reported driving after consuming alcohol, regardless of the amount consumed and frequency of use of this substance⁽¹⁰⁾. This variation is probably due to the small size of our sample, its non-probabilistic nature, as well as because it was only composed of motorcyclists, not of all types of motor vehicles drivers.

With respect to the breathalyzer test, other studies also conducted in Brazilian capital cities found higher occurrences of blood alcohol concentration than that found in this study: among motor vehicle drivers stopped at the Operation Dry Law in the city of Rio de Janeiro in 2010, 3.1% presented a positive result⁽¹¹⁾; among drivers stopped in the city of Belo Horizonte, between 2005 and 2009, there was a decline of a little less than 50% in driving behavior under the influence of alcohol, a few months after the enactment of the Dry Law. The prevalence of this behavior decreased from 37.5% in 2007 to 19.4% in 2008. With the repetition of the research in 2009, it was observed maintenance and even a further change in drink-driving behavior (16.6%)⁽¹²⁾.

It is worth mentioning that the present study is the first conducted in Brazil, aiming to describe behaviors related to drink-driving behavior of motorcyclists. Nonetheless, as the Dry Law must be obeyed by any motor vehicle driver, it is believed that its results also reflect the low prevalence of driving behavior after alcohol consumption, described by other studies carried out with all types of vehicles drivers⁽¹⁰⁻¹²⁾.

In the present study, almost half of the motorcyclists reported current use of alcohol. Such results are similar to those found in questionnaires conducted between 2005 and 2006 about the patterns of alcohol consumption in the Brazilian population⁽¹³⁾, which found that 52% of the Brazilian people may be classified as consumers of this substance. Because alcohol consumption is socially accepted and even encouraged, it is a widespread habit in most countries, as for its enjoyable effects, promotion of social coexistence or sense of freedom⁽¹⁴⁾.

Regarding the involvement of motorcyclists interviewed in traffic accidents, just over half of them reported having already been involved in

accidents, of which 11 reported use of alcohol prior to the accident. Motorcyclists are among the main victims of traffic accidents⁽¹⁵⁻¹⁷⁾, with seven times higher risk of death, four times higher risk of personal injury and twice higher risk of running over a pedestrian, when compared to car drivers⁽¹⁵⁾.

A study that identified causes of traffic accidents involving only motorcyclists in the western area of the city of São Paulo, Brazil, in 2013, found that among the 326 analyzed victims, one in every five had consumed alcohol or some type of drug prior to the accident⁽⁵⁾. In the United States, an analysis of the tendency of fatal traffic accidents involving use of alcohol among motorcyclists, observed a decline in prevalence of positive blood alcohol concentration among the victims in 1983, 1993 and 2003: 48.6%, 38.5% and 29.5%, respectively⁽¹⁸⁾.

Therefore, it is worth mentioning the importance of investment by managers, educators and the Brazilian society in changing habits and behaviors of motorcycle drivers, to make them more cautious and traffic law-abiding, through the provision of continuous and systematic information. Furthermore, it is also necessary to strengthen enforcement of local laws, especially those related to drinking and driving, in order to increase safety on public roads⁽¹⁹⁾.

Finally, the results of the present study show a decline (-81%) of the drink-driving behavior among motorcyclists after the enactment of the Dry Law. This is probably due to the maintenance of enforcement actions of traffic laws in the city of Rio de Janeiro, through the Operation Dry Law since 2009.

CONCLUSION

Limitations found in this study include its non-probabilistic sample, which prevents generalizations about its results; the non-systematic and random choice of motorcyclists stopped, probably influenced by the keen eye of military officers, who are used to approach "suspicious motorcyclists", reflected by the high proportion of male participants; and the lack of evaluation about the sensitivity and specificity of the breathalyzer test used.

Regardless of the limitations of the present study, it is possible to assume that the enforcement of the Operation Dry Law contributed to the decline of drink-driving among motorcyclists of the sample, since after the enactment of the Dry Law there was an increase of 95% in non-

driving behavior after the use of alcohol amongst them. Considering these results, it is suggested that, besides the maintenance and expansion of systematic enforcement actions, the driving schools must emphasize the importance of respecting traffic laws, not only to avoid legal penalties, but especially for the safeguard of the physical integrity of drivers, as well as of other individuals.

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