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Examination of Changes to the Motorcycle Law In Puerto Rico

Puerto Rico enacted a comprehensive motorcycle safety law in 2007 to address the rise in fatal motorcycle crashes. Prior to the enactment of the law, the popularity of motorcycle riding increased rapidly from 47,920 registrations in 2000, to 89,379 in 2004. The number of fatal motorcycle crashes also increased from 55 in 2004, to 111 in 2006. The provisions in the law include:

- Prohibiting any person under 12 years old as a passenger;
- Requiring safety gloves that cover the palms to be worn on both hands;
- Requiring footwear that covers the ankles;
- Requiring long trousers that cover the ankle area;
- Requiring every motorcycle operator to keep headlights and taillights on while the motorcycle is in motion;
- Requiring motorcycle operators to stay in the same lane as other vehicles;
- Requiring motorcycle operators and passengers to wear a reflective vest or device while operating a motorcycle between the hours of 6 p.m. and 6 a.m.;
- Changing the illegal per se blood alcohol concentration (BAC) level from .08 g/dL to .02 g/dL for motorcycle riders; and
- Creating new requirements for training and licensing.

The law also created a seven-member Motorcycle Rider Advisory Council, established closed-course motorcycle-safety-training ranges, and implemented a public information campaign on the changes in the law and motorcycle safety.

Project Goal

The goal of this study was to assess riders' awareness of and attitudes toward the law, rider compliance with the law's observable provisions, the enforcement of the law, and safety outcomes. To understand the law's effects, a review was conducted regarding the public information campaigns on the law, observed use of protective gear including helmets and reflective vests among riders day and night, information on rider awareness and opinion of the law, and analysis of NHTSA's Fatality Analysis Reporting System (FARS) for changes in the number of fatal motorcycle crashes.

Awareness and Attitude Toward the Law

It appears that, in general, motorcycle riders in Puerto Rico were aware of the law after its enactment, according to observations of riders and their use of protective gear (including helmets and reflective vests). Some riders stated that enforcement of impaired riding appeared to be more stringent for motorcycle riders at checkpoints compared to that for car or truck drivers.

According to feedback from law enforcement, after the implementation of the law, riders increased their helmet use and wore the required safety gear. In terms of impairment, however, officers noted that it was difficult to detect a motorcycle rider with a BAC at or just over .02. Officers receive training on detecting cues from riders at higher BAC levels, but not necessarily for riders whose BAC levels are relatively low.

Compliance – Helmet and Safety Gear Use

To estimate the law's effect on riders' compliance with the requirement to wear protective gear, the study analyzed citations from the Puerto Rico Police Department to motorcycle riders from 2006 to 2010. The number of citations for nearly every category of required protective clothing (including glasses, gloves, boots, and vests) decreased; there was a spike in citations in November 2007 that likely was due to increased enforcement activities after enactment of the law.

The study also included two rounds of roadside motorcycle observations to determine helmet and safety gear compliance, and found that of 424 riders observed, over 80 percent of riders wore protective gear, 98 percent wore long pants, 80 percent wore protective shoes that covered the ankle, 93 percent wore some type of eye protection, and 83 percent wore protective gloves.

Nearly all motorcycle riders (98%) wore some type of helmet. Of those, 366 (86%) wore DOT-compliant helmets, 49 (11%) wore non-DOT-compliant helmets, and 9 (2%) did not wear any type of helmet.

Puerto Rico already had a helmet law prior to 2007, but the use of DOT-compliant helmets increased after implementation of the 2007 law. In 2006, about 39 percent of motorcycle riders wore DOT-compliant helmets; the use rate in 2007 was

56 percent. In the 3 years since enactment of the law, the use of DOT-compliant helmet use was consistently greater than 70 percent (according to observations by Puerto Rico officials). The number of citations issued for non-compliance for helmet-use decreased after enactment, although the drop was not statistically significant.

Compliance – Impaired Riding

The study analyzed the law's effect on alcohol-related and alcohol-impaired motorcycle arrests and fatal crashes, including the following.

- Number of arrests for riding a motorcycle while impaired
- Number of alcohol-related (BAC of .02 and higher), alcohol-impaired (BAC of .08 and higher), non-alcohol-related (BAC=.00), and total motorcycle fatalities in Puerto Rico before and after enactment of the law

A review of citations issued at checkpoints in 2010 and 2011 showed that 52 percent of the motorcycle riders cited for impairment had BAC levels below .08. As a comparison, only 19 percent of the drivers of other vehicles (such as cars or trucks) had BAC levels below .08. This may suggest that motorcycle riders, as compared with drivers of other vehicles, tend to have lower BACs when they choose to drink and ride.

Alternatively (or possibly, in addition), it may suggest that law enforcement officials were more likely to request BAC testing and issue citations to motorcycle riders, as compared with drivers of other vehicles when the BAC was lower than .08.

As shown in Table 1, the number of fatal motorcycle crashes in Puerto Rico has decreased. However, statistical analysis of the FARS data for Puerto Rico in the pre-law years (2000-2007) and post-law years (2008-2010) did not find statistically significant differences. We do not know if the decreasing trend is due to the 2007 law.

Summary

In general, motorcycle riders and law enforcement officers in Puerto Rico indicated that they were aware of the 2007 motorcycle law and accepted the provisions. Observations of riders suggest that, after the law's implementation, the use of DOT-compliant helmets, as well as the use of other protective equipment and gear increased. There was a 58 percent decline in motorcycle rider fatalities from 111 in 2006 (the year before enactment of the law) to 47 in 2012. More than half of motorcyclists who received citations for impairment had BAC levels lower than .08, but fatal crash data analyses did not reveal significant changes pertaining to alcohol involvement in crashes in a pre-law to post-law comparison.

Table 1. Motorcycle Rider Fatalities in Motor Vehicle Traffic Crashes by Year and Rider's BAC, 2002–2012, Fatality Analysis Reporting System (FARS)

Year	Total	BAC=.00		BAC=.01-.07		BAC=.08+	
		Number	Percent	Number	Percent	Number	Percent
2002	59	37	63%	5	9%	22	37%
2003	54	34	62%	8	16%	20	38%
2004	58	34	58%	4	6%	25	42%
2005	87	45	52%	10	11%	42	48%
2006	111	74	67%	9	8%	37	33%
2007	83	48	58%	9	11%	35	42%
2008	76	37	48%	12	16%	39	52%
2009	53	36	67%	3	5%	17	33%
2010	45	26	59%	5	11%	19	41%
2011	49	29	60%	5	10%	20	40%
2012	47	26	56%	5	11%	21	44%

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