

A Retrospective Analysis of the Effectiveness of Helmets in Minimizing Serious Injury and Death Following ATV and Motorcycle Crashes



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Introduction

- In 2004 Louisiana instated a universal helmet law, still in place today, requiring helmet usage for motorcyclists and their passengers.
- There is no current law requiring Louisiana ATV and dirt-bike riders to wear helmets.
- Louisiana's universal helmet law has been subject to repeal attempts multiple times throughout the years, with the most recent attempt occurring in April of 2024. This attempt was stopped by the Louisiana Senate Transportation Committee.
- There are currently very few Louisiana laws in place to ensure the safety of ATV drivers and there is no law mandating helmet usage.
- Compared to someone riding in a car, a motorcyclist is 37x's more at risk of death in a crash.
- Studies have shown that there is a significant association between helmet laws and decreased fatalities following a crash. Literature shows a similar story with ATV riders who get in crashes.
 - One study shows that traumatic brain injuries (TBI) were significantly more likely in patients who were un-helmeted at the time of the crash, compared to those who wore helmets.
 - In addition, their fatality rates in hospital were much higher.
- A report released by the United States Consumer Product Safety Commission found that, of the 104,900 injuries that were sustained from 2015-2019 due to Off Highway Vehicles (OHVs), 27% of them were of children below sixteen, with half of that number being represented by children under twelve. More specifically, these children also made up a disproportionately high 16% of the ATV related fatalities during this period. When compared with children involved in car accidents, children in crashes while riding ATVs require hospitalization at a rate twice as high.

Objectives

- Primary Aim: To determine if helmet usage decreases the incidence of severe injury and death following ATV and dirt-bike crashes.
- Secondary Aim: To determine if helmeted motorcyclists have better post-motorcycle crash outcomes than those without helmets.
- Tertiary Aim: To determine if Louisiana's universal helmet law had an impact on motorcyclist helmet usage in Louisiana.
- Quaternary Aim: To estimate the cost incurred by the state and to the injured person due to un-helmeted crashes.

Methods

- A retrospective chart review from January 1st, 2019, to December 31st, 2023, will be performed on patients found in the UMCNO Trauma Registry who presented with injuries sustained during a motorcycle, ATV, or dirt-bike crash to University Medical Center New Orleans
- NOPD Crash Reports written from the scene of motorcycle, ATV, and dirt-bike crashes will be obtained to gather information on the helmet status of the drivers and passengers. Additional information needed that is not recorded in the trauma registry will be obtained from the EMR.
- The Fatality Analysis Reporting System (FARS), a nationwide census providing yearly data regarding fatal injuries suffered in motor vehicle crashes, will be used to obtain data on the number of helmeted and un-helmeted motorcycle fatalities by year from 1975 to 2022
- The primary outcome measured will be the injuries sustained due to motorcycle and ATV/dirt-bike incidents and the relationship between severity of injury with helmet usage.
- The secondary outcome measured will be the direct costs incurred by the state and the injured person(s) which will be based upon the patient's insurance coverage.
- The tertiary outcome measured will be the severity of injury, with severe injury being defined at ISS >15. The ISS will be obtained from the trauma registry.