Kansas Department of Transportation

TECHNICAL SUMMARY

Evaluation of Motorcycle Safety in Kansas

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Sunanda Dissanayake, Ph.D., P.E.
Mohammad Saad Shaheed
Kansas State University Transportation Center

Introduction

Over the past several years, motorcycle fatalities have increased at an alarming rate in the United States. Motorcycle safety issues in Kansas are no different from the national scenario. Accordingly, this study attempted to investigate motorcycle crashes in Kansas to identify critical characteristics and to evaluate the effect of those on motorcycle crash injury outcomes.

Project Description

State-level motorcycle rider fatality rates were investigated while considering various factors including helmet laws using generalized least-squares regression modeling. A detailed characteristic analysis was carried out for motorcycle crashes using Kansas crash data. Comparisons were made between several aspects of motorcycle crashes and other vehicle crashes. Analysis using logistic regression was performed on Kansas motorcycle crash data to identify factors affecting fatal motorcycle crashes. In addition, a survey was conducted focusing on identifying motorcycle rider behaviors, helmet usage patterns, perception towards helmet laws in Kansas, potential problems, crash contributory factors, and difficulty levels of executing different motorcycle maneuvers. Ordered probit modeling was used to identity factors contributing to increased injury severity of Kansas motorcycle riders involved in crashes.

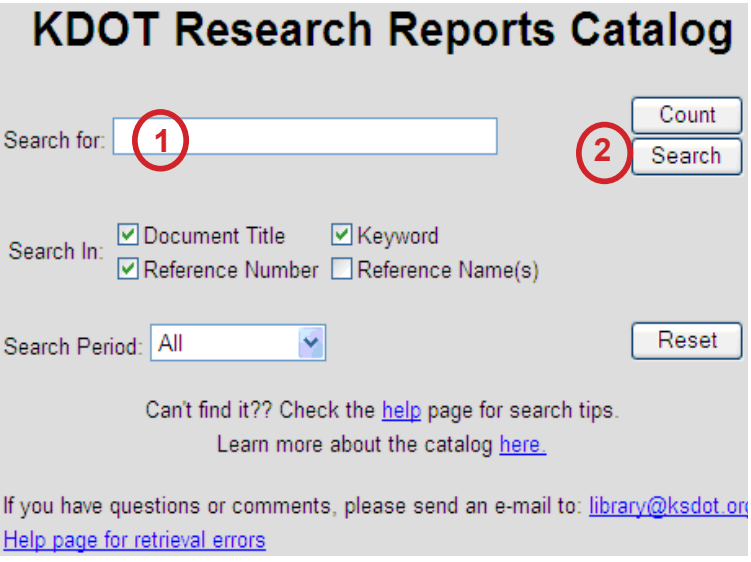
Project Results

Results from state-level modeling showed statistically significant relationships between motorcycle fatality rates in a given state as well as several other factors. These factors included weather-related conditions, helmet laws, per capita income, highway mileage of rural roads, population density, education, demographic distributions, and motorcycle registrations in the state. The study showed that states with mandatory helmet laws had 5.6% fewer motorcycle fatalities per 10,000 registrations and 7.85% fewer motorcycle fatalities per

100,000 population. Characteristic analysis of motorcycle crashes in Kansas revealed that motorcycle maneuvers such as overtaking, motorcyclists being older than 40 years, not using motorcycle helmets, daytime riding, crashes occurring on roadside shoulders, and being under the influence of alcohol at the time of crashes had a higher risk of ending up as a fatal motorcycle crash in Kansas. Results from the survey conducted among motorcycle riders in Kansas revealed that 71% of respondents thought drivers of other vehicles were the single biggest threat to their own safety. Survey results also revealed that 64% of respondents opposed a mandatory law requiring motorcycle riders and passengers to wear helmets in Kansas. Results from the ordered probit modeling of motorcycle rider injury severity showed that overturned and fixed-object motorcycle crashes, helmet non-use, younger motorcycle riders, speeding, presence of alcohol impairment among motorcycle riders, and good weather contributed to increased injury severity of motorcycle riders involved in crashes in Kansas.

Report Information

For technical information on this report, please contact: Dr. Sunanda Dissanayake, Kansas State University Department of Civil Engineering; 2128 Fielder Hall; Manhattan, Kansas 66506-4001; 785.532.1540; sunanda@ksu.edu.



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