Bicycle Safety Investigation in Alabama Using Historical Crash Data and Stated-Preference Survey

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**Study Objectives**
- Over a five-year span (2011-2015), Alabama has experienced a total of 1,332 bicycle-vehicle crashes and the crash pattern showed a 78% increase in fatalities.
- This study investigates bicycle safety in Alabama using both historical crashes and stated-preference online survey.
- The online survey examines bicyclists’ and drivers’ understanding of local biking regulations gains a perspective of the difficulties that drivers and bicyclists encounter when sharing the road.

**Data Collection**
- Crash data were collected from detailed review of 1,332 five-year police crash reports in Alabama (2011-2015).
- Geometric design and operational variables were collected from Google Maps that were rarely explored in previous studies, e.g.: number of turn lanes, parking presence, intersection type, and median type.

**Survey Results**
- Some of the difficulties that respondents regularly encountered when cycling were presence of dogs, heavy vehicle traffic, unsafe road conditions, narrow or no shoulders, and aggressive motorists.

**Crash Analysis Results**
- Nighttime and early morning riding (7:01 pm-7:00 am) and crashes involving males and middle-aged persons (26-64) were more severe.
- When bicyclists were totally ejected, 95.2% of the crashes were severe. Compared to intersections, more severe crashes occurred at midblock roadway sections with speed limits higher than 35 mph.

**Conclusions/Recommendations**
- There is a possibility of having severe injury even when wearing a helmet, given that most severe bicycle-vehicle crashes occurred on high-speed arterials.
- Enforcing speed limits in rural areas and on roadway segments with speeds higher than 35 mph.
- Avoiding the use of skewed intersections.
- More outreach programs for bicyclist/driver education of driving rules on shared roads.
- Adding more bicycle lanes.

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