



Bikesharing and Bicycle Safety

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The growth of bikesharing has had a significant impact on urban transportation in many US cities. But bikesharing has some qualities that appear inherently unsafe for bicyclists. Most prominently, helmet usage is widely documented to be quite low in most environments. In addition, bikesharing is also used by people who bicycle less frequently, and by tourists, who are often less familiar with the local terrain.

This study sought to better understand the factors that influence bikesharing safety and to evaluate whether available data could be used to determine if bikesharing has been safer or more dangerous than regular bicycling since its inception. Further, the study sought to determine whether the presence of bikesharing is associated with any noticeable “safety in numbers” effect – i.e., an overall reduction in the number of bicycle collisions within the system’s area of operation.

Study Methods

In this study, researchers took a closer look at bikesharing safety from qualitative and quantitative perspectives. Through focus groups, they evaluated perceptions of bikesharing usage and safety among bikesharing users and nonusers in the Bay Area. They engaged experts from a variety of fields in interviews nationwide to collect opinions and perspectives on bikesharing and safety. Finally, researchers conducted a data analysis of bicycle and bikesharing activity, as well as bicycle and bikesharing collisions, to evaluate injury rates associated with bikesharing when compared with known benchmarks of personal bicycling. To evaluate these questions, researchers focused on data analysis for three bikesharing regions: Washington DC, Minneapolis-Saint Paul, and the San Francisco Bay Area.

Findings

The data analysis found that collision and injury rates for bikesharing are generally lower than previously computed rates for personal bicycling. That is, collisions involving bikesharing users seem to occur less frequently than benchmark rates for personal bicycling in the US and Canada. This does not imply that bikesharing users are more protected from collisions, but it does suggest that, for one or more reasons, the likelihood of being involved in a collision (particularly one with a motor vehicle) has been lower for those operating a bikesharing bicycle than for those operating a personally owned bicycle.

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Experts and focus group participants independently pointed to bikesharing rider behavior and bikesharing bicycle design as possible factors explaining this finding. In particular, bicycles used for bikesharing are generally designed in ways that promote stability and limit speeds, mitigating key conditions that contribute to collisions. Accidents resulting in very serious injuries have occurred on bikesharing bicycles, but as of January 2016, no fatalities have occurred on bikesharing bicycles in the US.

Data analysis looked for evidence of a “safety in numbers” benefit, – the possibility that the presence of additional bicycles from bikesharing may be associated with a reduction in the number of bicycle collisions overall – however, no significant impact was found within the regions evaluated in this study. The apparent reduced rate of injurious collisions between bikesharing users and vehicles may be attributed to a number of factors. A better understanding of these factors could help maintain or improve the safety record of bikesharing, as well as perhaps aid in the safety of bicycling more broadly. Among the theories for further consideration:

- Bikesharing bicycles are more visible and recognizable. Many bikesharing bicycles light up at night and are painted in standard bright colors.
- Bikesharing bicyclists may be inherently more cautious when riding. Demographics could also play a role. Surveys of bikesharing users consistently suggest that they do not reflect the general population, but among other characteristics, are relatively younger and more educated.
- Bikesharing bicycle design causes slower and more stable riding, mitigating the risk factors that often lead to bicycle collisions.



Policy Recommendations

While bikesharing appears to have lower collision rates relative to personal bicycling, additional measures, such as increased helmet use, could still help reduce injuries from collisions. Like seatbelts in cars, helmets do not prevent collisions from occurring, but they mitigate the severity of injuries when collisions do occur. Increased use of helmets in this environment would unequivocally improve bikesharing safety. Infrastructure improvements such as protected bicycle lanes, could also serve to further lower exposure of bicyclists and bikesharing users to vehicle collisions. Further work evaluating the safety of bikesharing, its determinants, and its potential impact on bicycling as a whole could advance safety in all areas of bicycling. These and related issues welcome additional focus and investigation in the future.

About the Principal Investigator

Elliot Martin, PhD, is an MTI Research Associate and an Assistant Research Engineer at the Transportation Sustainability Research Center (TSRC) within the Institute of Transportation Studies at the University of California, Berkeley.

To Learn More

For more details about the study, download the full report at transweb.sjsu.edu/project/1204.html

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