Dissecting Traffic Risk as a Barrier to Bicycling

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Nearly twenty years of federal policy has sought to increase bicycling trips in the United States to improve physical health, mitigate automobile pollution, and increase access—but research shows that people’s concerns about bicycling near traffic remain a significant barrier to widespread cycling (Dill & Voros, 2007; Winters, Davidson, et al., 2010). While an important finding, the research has not disaggregated bicycling traffic risk to expose its many aspects and how they may affect bicyclists with differing skill levels, experiences, and behaviors. If we are to see more cyclists in the next twenty years, perceived and actual traffic risk for bicyclists will have to be understood and addressed.

This presentation elaborates on results from a recent internet survey examining various aspects of traffic risk among 463 non-bicycling drivers, bicycling drivers, and non-driving bicyclists in the Bay Area. Analysis of variance tests and multiple regression models were used to explore how aspects of perceived risk were related to sociodemographics, experiences driving and bicycling, knowledge of roadway rules, and beliefs about and attitudes toward bicycling.

The results revealed that bicyclists’ perceptions of various risks differed according to riding frequency, with frequent cyclists more worried about more commonly reported crash types, while potential cyclists worried more about less common crashes. Respondents who bicycled also reported “near misses” (experienced by 67% of the sample) and collisions (experienced by 14% of the sample) with motor vehicles. The near miss-to-hit ratio ranged from 5 to 37 for various incidents, suggesting that some common near miss types rarely end in a collision, while other, less common types, end in a collision much more frequently—both categories of which could lead to increased perceived bicycling risk. The data indicate that various perceived risks are significantly related to near miss and collision experiences of cyclists and their family and friends, the latter applicable also to potential cyclists. The survey also found that support for bicycling in one’s city is significantly related to perceived risks—but in opposite directions for potential and frequent cyclists. This implies that addressing perceived risk is not only important for increasing safety and comfort on the roadway—it may also lead to greater community support among non-bicycling drivers for efforts to improve and increase bicycling.

These findings suggest that efforts targeting specific driver and bicyclist behaviors could mitigate perceived—and actual—traffic risk for potential and current bicyclists. In turn, this may precipitate greater community support for bicycling, leading to a virtuous cycle of improved bicycling safety and increased bicycling.
References: