Title: Attitudes and behavioural preferences of bicyclists using smartphone app: a comparison in two urban areas in Italy and USA

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Author keywords: Bicycles, Survey, Safety, Smartphone, App, Statistical method,

Background

The number of people using bicycles as a primary mode of transport has increased over the past 40 years. Higher growth has been attributed to infrastructure improvements and the introduction of programs that advocate bicycling. These efforts have included the addition and expansion of bicycle facilities (lanes and paths), implementation of traffic calming measures, improved bicycle-transit integration, establishment of bike sharing programs, and promotional events. Along with large-scale mail and phone questionnaire-driven surveys, a variety of other tools have been leveraged to collect quantitative and qualitative data on bicycling and walking behavior and preferences. New cycling apps are constantly introduced to record ride, monitor training and also for route planning.

Aim

Although surveys are used routinely to understand bicycle usage in the USA and Europe, no comparative studies have been performed that systematically compare the preferences and attitudes of bicyclists across various contexts taking into account impediments to bicycling and what features bicyclists would like to find in a smartphone app. This study provides much-needed insights into bicyclist preferences and how they vary between countries.

Method or methodological issues

Researchers developed a web-based survey to solicit responses about bicyclist attitudes, opinions about bicycle infrastructure, and preferences for a smartphone app that would assist bicyclists with route selection. The survey targeted audiences in two cities: Lexington, Kentucky, in the USA and Catania, Sicily, in Italy. Survey questions were developed after reviewing previous surveys given in both the USA and Europe to catalogue bicyclist attitudes. The survey contained five parts: demographic questions, questions about bicycle usage and impediments to bicycling, a list of items that would help increase the use of bicycle as a transport mode, and a series of elements that could be useful in a smartphone app. Researchers statistically analyzed survey results to determine whether there was a consensus in the rankings of each group of participants and compare responses from the two cities. Kendall’s coefficient of concordance (W) was used to estimate consensus on the rankings within each group of participants, and the U Mann-Whitney test was selected to detect differences in the rankings between the survey participants from each country.

Results obtained or expected;

Survey results could reflect the presence or absence of bicycle infrastructure. Respondents in Lexington tend to bike more miles per week than those from Catania, possibly due to a more robust bicycle network, which accommodates longer trips and greater commute frequency. Another item that indicates the effects or infrastructure or how local governments support bicycling is modal connectivity.
Survey participants in both cities overwhelmingly said that lack of quality infrastructure is a major impediment to bicycle usage mirroring results of previous research. Respondents expressed a strong desire for a smartphone app that contains information on route safety along with other typical features. Current apps do not provide this; they include data on route geometry and distance between origin-destination pairs, but little else.

Conclusions

The survey’s findings demonstrate that bicyclists around the world hold similar opinions on what improvements are required to promote cycling and enhance their experiences. Agencies wanting to increase bicycling in their jurisdictions must improve infrastructure. The wealth of information and data that can be collected through smartphone apps can provide transportation agencies with the means to identify needed improvements on their networks and develop targeted solutions that encourage bicycling as a transportation alternative. While respondents were not unanimous in their opinions about the importance of different app features, they agreed it is critical for it to contain information regarding the safety level of the route.