Title: Recognition on trigger condition of autonomous braking system

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Background

Automobiles carrying autonomous braking system are prevailing. More than 40% of vehicles sold in Japan in 2016 have been equipped with the systems. While the reduction of traffic accidents is expected due to the widespread use of the system, there are concerns that many drivers are using the system without the proper understanding of the trigger conditions. Ambiguous recognition of such "trigger conditions" can also have serious adverse effects, such as promoting dangerous driving.

Aim

We grasp the degree of recognition of the trigger condition of the autonomous braking system of the driver holding the vehicle equipped with the system. And the influence factors on that recognition are shown.

Method

In this research, we develop a multivariate analysis model with the degree of understanding of the trigger condition of the autonomous braking system as the objective variable. The explanatory variables of this model are "personal attributes" and "contact opportunities of information on the autonomous braking system". "Personal attribute" is composed of age, gender, driving frequency, type of vehicle in possession, the ability of own activity, and driving style. "Contact opportunities of information on the autonomous braking system" is composed of "experience of the autonomous braking system before purchasing" and "information provided by various mediums" such as TV commercials and magazines. The trigger condition of the autonomous braking system was referenced from the automaker's website.

This analysis is conducted on a characteristic group holding an autonomous braking system. Therefore, we collected the data through a web research company (Rakuten Research) with a large population that can be screened. The population of this survey is 1.22 million people holding cars. We sent a survey sheet for screening to 9,999 monitors randomly selected by gender and age group for this population and confirmed own vehicle with autonomous braking system ownership status. Subsequently, the main questionnaire was sent to the respondents who passed the screening. The survey was finished at the stage of obtaining answers of target number by gender / age group. The number of answer targets was 200 for each of 4 groups divided by elderly / non-elderly and gender (male and female).

Result expected

Many respondents referred to "explanation by car dealer" and "explanation in maker catalog" about the autonomous braking system. On the other hand, "automobile specialty magazine" and "the result of performance evaluation in public institutions" were not well consulted. Among the trigger conditions of the autonomous braking system, there are a relatively large number of respondents who said "knew it now" especially regarding pedestrian detection. By considering the constructed multivariate analysis model, it is expected that what "personal attributes" and "contact opportunities
of information on the autonomous braking system" will affect the recognition of the trigger condition.

Conclusion

From the viewpoints of 'personal attributes' and 'contact opportunities of information on the autonomous braking system', influence factors on recognition of trigger condition of the autonomous braking system are clarified. In the future, we are planning to analyze how the recognition difference of trigger condition affects driving behaviors.