ANALYSIS OF ROAD ACCIDENT RATES FOLLOWING PERFORMED ACTIONS ASSOCIATED TO ENGINEERING, EDUCATION AND ENFORCEMENT: ARARAQUARA, FRANCA, MATÃO, RIBEIRÃO PRETO AND SÃO CARLOS

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ABSTRACT

The main objective of this research is to observe the evolution of road accident rates in five municipalities of the State of São Paulo, Brazil (Araraquara, Franca, Matão, Ribeirão Preto and São Carlos), by means of analyzing the relationship between the accident/mortality indexes and the actions performed by each municipality in the following areas: engineering, education and enforcement.

As a first step, statistical data on road accidents in the above-referred municipalities during the period between 2005 and 2014 will be collected. As a complement, group interviews will be carried out with the responsible people for each area related to the performed actions in each municipality. These group interviews follow a Focus Group protocol aiming at stimulating discussion among participants in order to get more complete information than in individual interviews. Based on the collected data a questionnaire will be developed in order to be applied to drivers from each one of the targeted cities. It is assumed that the subsequent use of these methodological tools will enable the analysis of the relationship between the statistical indexes and the effects of the adopted actions (engineering, education and enforcement) on road users’ behavior within each targeted municipality from the perspective of different road users’ categories: experienced, novice and professional drivers, pedestrians and motorcycle and bicycle riders.
1. INTRODUCTION
At the beginning of the 21st Century the road accidents turned out a public health’s problem, generating about 1.3 million deaths (WHO, 2013). Furthermore, the number of injuries is between 20 and 50 million – many of them staying with severe physical, mental and/or psychological sequelae that prevent a normal life (FERRAZ et al., 2012).

In 2004, road accidents were the 9th cause of deaths in the world. The forecast for the year 2030 makes this situation more dramatic; traffic accidents would become the 5th leading cause of death in humanity (WHO, 2013). In 2011, it was observed that Brazil is the 5th most violent country in transit. According to Brazilian Ministry of Health (MINISTÉRIO DA SAÚDE, 2012), in 2012, there were about 45,000 deaths due to traffic accidents.

Also according to the World Health Organization (WHO, 2013), traffic accidents are the leading cause of mortality in the group of people between 15 to 29 years old, showing that the problem is more acute, as the victims are mostly young and healthy before their accidents.

The high dependence on car use associated with the degradation of the traffic conditions has caused severe urban mobility problems and high accident rates for the Brazilian population, affecting the economic and social development of cities and especially their quality of life. Furthermore, the high motorization rate of the cities is aggravating the number of serious injuries and deaths in Brazilian cities.

In this context, studies focused on road safety are extremely important for there to be a more accurate understanding of the factors that affect the accident rates, aiming at the reduction of fatalities in traffic. In order to have a reduction in the number and severity of traffic accidents, actions focused mainly in Engineering, Education and Enforcement are necessary (FERRAZ et al., 2012).

2. OBJECTIVE
The main objective of this research is to observe the evolution of road accident rates in five municipalities of the State of São Paulo, Brazil (Araraquara, Franca, Matão, Ribeirão Preto and São Carlos), by means of analyzing the relationship between the accident/mortality indexes and the actions performed by each municipality in the following areas: engineering, education and enforcement.

3. METHOD
This research will make use of traffic accident data provided by the Military Police of State of São Paulo, Brazil, involving the period between 2005 and 2014 in five municipalities: Araraquara, Franca, Matão, Ribeirão Preto and São Carlos.

Using available data, this research will be divided in three steps. First, the evolution of accident rates will be analyzed in five municipalities of State of São Paulo (Araraquara, Franca, Matão, Ribeirão Preto and São Carlos) according to the number of injured people and the number of deaths per 100,000 vehicles in the period between 2005 and 2014.

In the second step, the data collection will be carried out in order to identify which actions were performed in the areas of engineering, education and enforcement. Data collection will be done by implementing group interviews with the responsible people for each area related to the performed actions in each municipality following the Focus Group protocol. At this step a script of interviews will be prepared aiming at stimulating discussion among participants in order to get more complete information than in individual interviews.
Finally, with the results obtained in the previous steps, will be produced a questionnaire to identify the relationship between the statistical indexes and the effects of the adopted actions (engineering, education and enforcement) on road users’ behavior within each targeted municipality from the perspective of different road users’ categories: experienced, novice and professional drivers, pedestrians and motorcycle and bicycle riders.

4. FINAL CONSIDERATIONS

Preventive actions that avoid the occurrence of accidents are less expensive, making it important to have a planning program and traffic management within the prefectures of Brazilian municipalities. It must be considered the behavioral adaptation of drivers to changes in the different areas that compound the traffic in each one of cities. Many times, accident rate reduction is not maintained, returning to growth in the following years after the interventions. In this sense, it is fundamentally important an integrated and continued process in the areas of engineering, education and enforcement by all society: population, managers and professionals of each of these areas.

REFERENCES

