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Violent events on the road: Risk perception of traffic-related and non traffic-related situations

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ABSTRACT

This study aimed at identifying and comparing subjective risk perception regarding two different violent situations in urban roads: traffic accidents (i.e. crashes) and robberies. A robbery consists of subtracting something from someone, while seriously threatening the victim, or using violence. Robberies can be perpetrated either with or without the use of a weapon.

This study was carried out in the city of Uberlândia, a medium size city in the state of Minas Gerais, south-east Brazil. A total of 383 people was interviewed at home in two boroughs of Uberlândia, using a questionnaire divided in five parts: a) personal information; b) description of crash involvement; c) description of robbery involvement; d) the chance of being involved in a crash and in a robbery within the next three years; e) willingness to pay for more safety in traffic or for more security against robberies; f) what causes more damage or harm to society, crashes or robberies.

Descriptive figures are shown for the sample which reported 1.44 crashes/person. More than half of those involved in crashes (56%) were injured and 75% of these needed hospital care. There were 1.15 robberies/person. Only 7% of those involved in robberies were injured, none of them hospitalized. During robberies, 57.3% of the respondents were threatened with weapons. Car drivers were more subject to crashes (40%) and pedestrians were more subject to robberies (78%). Risk perception of being involved in a robbery within the next three years and when on the streets of the local borough is higher than crash risk perception. Respondents thought of dying in 25.5% of the crashes and in 46.3% of the robberies. A large group (63.7% of the sample) declared the willingness to pay for more personal security rather than for more traffic safety. Statistical analysis is presented in an attempt to study the relationship between variables.

As expected, the respondents' subjective risk perception appears to contradict objective risk. Instinctively, interviewees might perceive robberies as a greater threat than crashes, perhaps reflecting lightly on the latter. In countries with high crash and violent incident statistics such results could be used to orientate traffic safety policies, education and campaigns, concentrating on the outcomes of crashes.

1. Introduction

Citizens are exposed to multiple risky situations on the roads. Risk perception is associated to danger, hazard or potential threat perception due to different sources. Individuals' risk perception may determine their attitude and, consequently, their reactions and behaviour towards each of the hazards they are exposed to. Understanding risk perception of hazards on the road contributes to establish more suitable countermeasures, especially those concerning traffic safety education.

According to the Brazilian National Policy for the Reduction of Morbidity and Mortality from Violence and Accidents (Ministério da Saúde, 2001), "violence consists of individual, group, classes, nation

actions or neglect that result on human beings death or affect their physical, moral, mental or spiritual integrity". Jackman (2002) unfolds what she calls a generic definition of violence enlarging the field of violent actions: "Actions that inflict, threaten, or cause injury. Actions may be corporal, written, or verbal. Injuries may be corporal, psychological, material, or social". Traffic accidents (i.e. crashes) are one of the violent incidents that threaten the life and the health of individuals. It is important to note that there is violence in road traffic even in situations where there are no crashes or victims, depending on road users' behaviour when interacting with other road users (Braga and Faria, 2011). Robberies occurring on the roads are another type of violent situation. According to the Brazilian Penal Code (Código Penal,

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2015), a robbery consists of subtracting something from someone, while seriously threatening the victim, or using violence, after reducing by any means his/her possibility of resistance. Robberies can be perpetrated either with or without the use of a weapon. Robberies were, therefore, chosen to represent another aspect of urban violence in this study.

This study aimed at identifying and comparing subjective risk perception regarding two different violent situations in urban roads: crashes and robberies. It was carried out in the city of Uberlândia (620,000 inhabitants), a medium size city in the state of Minas Gerais, south-east Brazil. The hypothesis is that regardless of the objective risk informed by incidents formally registered and depicted in official data, people perceive as a greater risk involvement in robberies on the road rather than in crashes.

There are difficulties in describing the problems under analysis, especially comparisons using annual data. In particular, there is a lack of data on robberies and on homicides as a consequence of robberies. Frequently, there are no data available for the same set of years for each of the issues considered here. Due to this shortcoming, we shall present data for neighbouring years to allow for describing in the best possible way two violent situations.

In 2011, there were 22.5 deaths/100,000 inhabitants from crashes in Brazil (43,256 fatal victims), 23.2 deaths/100,000 inhabitants in the State of Minas Gerais and 31.5 deaths/100,000 inhabitants in the municipality of Uberlândia. In the country, men were the vast majority of fatal victims (82.3%). Amongst fatal victims, 27.3% were pedestrians, 28.7% car occupants and 33.9% motorcyclists (Wayselfisz, 2013a,b).

In 2014, there were 1.1 robberies with fatal victims/100,000 inhabitants in Brazil (2182 fatal robberies) and 0.3 robberies with fatal victims/100,000 inhabitants in the State of Minas Gerais. One year later, the rate was stable but the number of fatal robberies in Brazil grew up to 2314. There were 0.5 robberies with fatal victims/100,000 inhabitants in the State of Minas Gerais (FBSP, 2016). According to the same source, there are many deaths in the country with a non-identified cause: 3.7 deaths/100,000 inhabitants in 2014 and 4.1 deaths/100,000 inhabitants in 2015 (FBSP, 2016). Therefore, it is possible that an under report of robberies with fatal victims occurred.

Statistics on robberies with fatal victims are not available for the municipality of Uberlândia. Nevertheless, based on data for this type of crime for both the country and the State, it could be argued that far more people are killed in crashes than in robberies within the municipality.

Urban violence is growing non-stop, as well as the fear of crime felt by the general population, the latter mainly due to homicides publicized daily in the media, exacerbating its negative effect (Ambrey et al., 2014). In 2011, IPEA (The Institute for Applied Economic Research, a federal public foundation linked to the Secretariat of Strategic Affairs of the Presidency of the Republic) published its first report on security in Brazil (IPEA, 2011) where responses to 2888 questionnaires were analyzed. Regarding the degree of fear of being murdered, 78.4% of the respondents felt a lot of fear, 10.9% little fear and 10.7% no fear at all. The south-east region of Brazil presented at that time the lowest homicide rate (16.43 homicides/100,000 inhabitants). IPEA (2014) published a second report describing the results of 3772 questionnaires. Fewer respondents, in comparison to 2011, described feeling a lot or little fear of being murdered (85.4%). The majority of the interviewees (62.3%) affirmed feeling a lot of fear of being victims of armed robbery and 25.5%, little fear.

Within the period of 10 years (2001–2011) the number of fatal victims/100,000 inhabitants due to crashes grew 27.0% in Brazil and 61.7% in the State of Minas Gerais. Also within a period of 10 years (2002–2012) the number of homicides/100,000 inhabitants due to fire weapons grew 0.5% in Brazil and 42.0% in the State of Minas Gerais (Wayselfisz, 2013a). In the country, figures on robberies with fatal victims also grew: from 0.76 robberies with fatal victims/100,000 inhabitants in 2011 (SINESP, 2015) to 1.1 robberies with fatal victims/

100,000 inhabitants in 2014 (FBSP, 2016).

If subjective risk perception would accompany objective risk, people would perhaps fear at a greater extent the involvement in crashes than in any kind of incident involving fire weapons, including robberies. However, people learned to live with risks in traffic and they believe that they have control, especially drivers (Rundmo et al., 2011). McGuire (2004) points out an indirect relationship between chances of becoming a victim of crime and its perceived likelihood of occurrence. Nevertheless, people have no control when facing personal security threats, feel vulnerable and fear it. “Fear increases the perception of risk” (Lu et al., 2013). The offender dominates the event and worse, death can follow by banal reasons (Silva-Manuel et al., 2013). There is a vast literature on post-traumatic stress disorder (PTSD) as a consequence of violent events, including crashes (Lucas, 2003).

On the one hand, citizens are encouraged to use safer travel modes than cars. On the other hand, more sustainable modes like walking and cycling are also encouraged for various reasons such as health promotion or in order to diminish motorized traffic for different purposes. Crime can negatively impact these attempts as Foster et al. (2014) report the association between fear of crime and decrease of residents’ walking inside their neighbourhood, including what they call transport walking. Other studies cite pedestrians’ dissatisfaction with personal security and warn of the ineffectiveness in improving traffic safety when not considering the security context (Villaveces et al., 2012). Jacobs (2000) reinforces the importance of sidewalks when the subject is personal security. This author argues that the judgement of a city’s security is in fact the judgement of its sidewalks. She supports that low pedestrian densities may compromise the local security and that it is advisable to have uninterrupted pedestrian flows.

Crossing red lights in Brazil has increased in situations where drivers fear their security might be at risk. Fyhri and Backer-Grondahl (2012) report that the “most typical adaptation for car drivers is to travel at a different time, whereas for pedestrians is to change their route”. Furthermore, these authors mention that a significant predictor of adaptation is car users’ worry about crashes and pedestrians’ worry about unpleasant incidents (robberies included). They also state that public transport is considered safer (in comparison to private) when the risk of crashes is envisaged and is considered more risky, in the case of unpleasant incident situations. These aspects might show that security and traffic safety might be entangled.

2. Data collection

In order to select where the interviews would be held in the city of Uberlândia, data on crashes and robberies were collected for a three year period. Data were obtained from the Traffic Operations Department (damage-only crashes) and from the Military Police (fatal and non-fatal crashes and different crimes). Robberies were the most frequent type of crime registered in the city. This study is concerned with those occurring on the roads (the same scenario as crashes), either when the respondent was in a bus or taxi, or travelled as a pedestrian, a cyclist, a motorcyclist or as a car driver/passenger.

A methodology proposed by the National Traffic Department (DENATRAN, 1987) was used to associate different weights to crashes, according to their severity and to crash costs. The Brazilian costs determined by IPEA (2003) were used in the calculation, resulting in: weight 1 for damage-only crashes, weight 5 for crashes with non-fatal victims and weight 44 for crashes with fatal victims. The total number of crashes in each borough of Uberlândia was transformed in a weighted total number. The average figure for three years was related to the road network extension. The same procedure was used regarding the average number of robberies for the three year period. Two boroughs (here referred to as Borough A and Borough M) presented the highest figures for the two problems. The average figures are: Borough A – 1660 crashes/km, 4544 weighted crashes/km and 1198 robberies/km; Borough M – 1827 crashes/km, 4876 weighted crashes/km and

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