

## SOCIAL REPRESENTATIONS OF TRAFFIC VIOLENCE AND RELATED PSYCHOSOCIAL ASPECTS

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**ABSTRACT:** A qualitative, exploratory-descriptive and cross-sectional study was carried out, featuring 50 semi-structured interviews with patients (45 males and 5 females) hospitalized due to traffic accidents. In most cases, the vehicle was a motorcycle and the interviewee was the driver going to work or returning home. It was not rainy in forty cases. Participants' representation on traffic violence comprises the conception that society as a whole is violent, whilst traffic is another manifestation of such phenomenon within a society where education and respect for life are lacking. These aspects mainly refer to car drivers who, in a certain way, would disregard motorcyclists.

**KEY WORDS:** Social representations; Traffic accidents; Violence.

## REPRESENTAÇÕES SOCIAIS DA VIOLÊNCIA DE TRÂNSITO E ASPECTOS PSICOSSOCIAIS RELACIONADOS

**RESUMO:** Realizou-se estudo qualitativo, de natureza exploratório-descritiva e de corte transversal, por meio de 50 entrevistas semi-estruturadas com pacientes (45 homens e 5 mulheres) internados em decorrência de acidente de transporte terrestre. Na maioria dos casos o veículo era motocicleta e era o próprio entrevistado quem estava conduzindo-o. O principal motivo do deslocamento era a ida ou volta do trabalho. E em 40 casos não estava chovendo. Sobre violência de trânsito os participantes a representam a partir de uma concepção de que a sociedade como um todo é violenta, e que o trânsito é mais uma das possibilidades de manifestação deste fenômeno, em uma sociedade onde falta educação e respeito para a vida. Tais aspectos principalmente se referem aos motoristas de automóvel, que de certa forma agiriam com “descaso” em relação aos motociclistas.

**PALAVRAS-CHAVE:** Acidentes de trânsito; Representações sociais; Violência.

## INTRODUCTION

Road Accidents (RAs) involve approximately 1.35 million fatalities worldwide, plus 20 to 50 million injured people a year. They are actually the main *causa mortis* of children and young people within the 5 – 29 years bracket<sup>1</sup>. In most countries, they amount to almost 3% of their GDP - Gross domestic product<sup>1</sup>. According to the Mortality Information System of the Brazilian Health Ministry<sup>2</sup>, there were 37,345 deaths by traffic accidents in Brazil during 2016. Further, in 2014, there were 176,007 hospitalizations per RA (a rate of 8.6

hospitalizations/10,000 inhabitants), with an expenditure for the National Health Service (SUS) of R\$ 244 millions<sup>3</sup>.

There has been a high increase in RAs for Brazilian population in general during the 2010s, with special reference to the Central Western Region of Brazil in 2012, with 32.1 deaths/100 000 inhabitants, followed by the South Region, with 27.7 deaths/100 000 inhabitants<sup>4</sup>. When fatality rates by traffic accidents in Brazil are compared to those in other countries, Brazil ranks fourth, with 23 deaths/100 000 inhabitants, after Venezuela (28.2), Switzerland (26.5) and Bermuda (25.2)<sup>4</sup>.

RAs are not casual and unforeseen events. They indeed have characteristically distribution parameters<sup>5</sup>. Several academic publications have shown that important factors may be underscored at the origin and severity of RAs<sup>6,7,8</sup>. They comprise age, gender, socio-economic conditions, disrespect of traffic laws, mainly speed excess, and the ingestion of alcoholic beverages prior to driving, associated with lack of traffic supervision and control<sup>6,7,8</sup>.

It should be highlighted that traffic may be affected by behavior and by a socio-cultural system of values<sup>4</sup>. Theoretical presuppositions are required to understand the above aspects and to formulate the several levels involved. The Theory of Social Representations is an integrating system that articulates cognitive and psychological dynamics to social and interaction ones and takes into account production, operation and functions of social thought. Understanding social behavior is consequently made possible<sup>9,10</sup>.

Social Representations (SRs) are constituted by people and groups, approaching people, sharing knowledge and experiences, and coping with daily social life. Jodelet<sup>11</sup> states that representations occur in discourses, they circulate in messages and images vectored by the social media, and they are concretized in behavior and practical organizations, very similar to knowledge mode. In fact, they are complex phenomena always connected to social life. They comprise popular knowledge, produced by common sense, in the wake of a specific social object, with cognitive components linked to ideology, norms, beliefs, values, attitudes, opinions and images.

SRs are socially formed knowledge, shared and inseparable from the subject's symbolic activity.

In other words, they are a type of language monitoring communications and behaviors<sup>12</sup>. Consequently, studies guided by the Social Representations Theory (SRT) may be useful for the health area to understand aspects that affect the behavior of subjects within their daily subjective and group experiences. Foregrounded on the representations of a phenomenon, people evaluate and posit themselves with regard to risks. According to Guimelli<sup>13</sup>, unexpected events often trigger the emergence of practices adapted to novel situations, imposed externally or self-imposed by the group itself.

The social representations' approach provides a set of analyses and interpretations that allows the comprehension of the manner interactions between individual function and the conditions of social agents evolve. Due to this approach, the study of collective risks allows the comprehension of processes that intervene in day-to-day modes and in the characteristics of the social medium within the social and cognitive adaptation<sup>14</sup>, or rather, traffic risks and their relationships with social practice.

Current research aims at understanding the SRs of traffic violence as the psychosocial factors associated to risk by RAs through interviews with people who experienced road accidents and hospitalized so that public policies for the prevention of RAs may increase.

## METHODOLOGY

A qualitative, exploratory-descriptive and cross-sectional study was carried out. A case-study design analyzes a phenomenon within its contexts from worldviews through points of interest. Study features 50 semi-structured interviews with over-18-year-old patients hospitalized in the trauma sector of a traffic accident-reference hospital and who consentin participating.

The interview was composed of two sectors: the first part of the interview comprised psychosocial aspects related to traffic violence, to the specific accident and its consequences; the second sector comprised semi-structured questions to make an in-depth study related to the accident concerned, or rather, using the mobile, ingestion of alcoholic beverages, time of accident, type of vehicle (car, motorcycle, socio-demographic features of

the interviewed person (gender, age, profession, wage). The project was approved by the Committee for Ethics in Research with Humans of the Federal University of Santa Catarina (UFSC), Brazil (Protocol n. 2.772.088).

The lexical analysis of text segment sets was employed for the analysis of Social Representations of traffic violence, by Descending Order of Hierarchical Classification (DHC) in which word distribution by classes is achieved by vocabulary similarity of text segments of the initial corpus<sup>15</sup>. DHC establishes classes of Text Segments (TSs) simultaneously with similar vocabulary between them, albeit different from the TSs of other classes. Other analyses were undertaken for a better visualization of results, such as analysis of similitudes that identifies co-occurrences between words, and helps in the identification of content structure<sup>16</sup>; and word cluster that groups words and organizes them graphically according to frequency. This is highly relevant for initial contact with results<sup>15</sup>.

Analyses were undertaken by free software IRaMuTeQ<sup>15,17</sup>, based on software R. According to Camargo and Justo<sup>15</sup>, it was developed to supersede the normal opposition between the method of quantitative and qualitative analyses. In fact, analysis quantifies and undertakes statistical calculi on basic qualitative variables. Within the field of social psychology, especially in studies on social representations, and due to the importance of linguistic manifestations, the classes hereafter generated may indicate SR or its aspects<sup>18</sup>.

## RESULTS

Fifty people, 45 males and 5 females, hospitalized in a trauma reference hospital due to RAs, participated in current research. Mean age was 33.5 years (SD=10.8). Seventeen frequented but did not graduate from high school; ten graduated from high school; nine received higher education, but failed to graduate; seven frequented fundamental education but did not graduate; 5 had a higher education degree; two frequented fundamental education and graduated. Nine participants said they were motorcycle errand boys; 9 were self-employed; 8 worked in shops; 4 were students, 2 were retired and sixteen were classified under the column Others,

among whom were 2 pedestrians. Mean wage among the fifty participants reached R\$ 3,717 (approximately two minimum wages). One participant did not inform wage and another one said he did not know.

In 44 cases, the interviewed person was driving the vehicle, a motorcycle in 39 cases. In 38 cases, the vehicle was one's own, whilst 49 participants reported that the vehicle had the legal papers.

Accident time ranged between evening (12 cases) and night (16 cases), and early morning (8 cases) and morning (14 cases). Climatic conditions at the time of the accidents were 40 cases during the dry period; only 7 cases for the rainy period; three cases occurred when it was cloudy. Weekdays with the highest RAs occurrence were Friday and Saturday, with 13 accidents, followed by Tuesday (8 cases) and Wednesday (6 cases). Monday and Thursdays had four occurrences each.

When asked on speed limits at the site of the accident, 46 participants stated it was 80 kph; one participant said that it was over 80 kph and three said they did not know. According to 28 participants, no traffic police was on the spot. Thirty-two participants stated they were going to or returning home from work, whilst 18 said they were just enjoying a ride. In all case, the accident site was a known place.

Thirty-six participants stated they drank alcoholic beverages, of whom 25 were social drinkers and 11 only consumed alcoholic beverages on weekends. Eleven participants stated they used other drugs besides alcoholic beverages, of whom, 6 used them socially, 2 used them daily and one on weekends. Forty-four interviewees said they slept well during the night prior to the accident. Only five participants used controlled medicine and all said they did so on the day of the accident.

Only three participants replied positively when questioned whether they were using mobile telephone or any other electronic apparatus when they were driving at the time of the accident. However, eleven interviewees admitted they usually use the mobile when driving. Forty-eight participants stated they always use the motorcycle helmet or the safety belt when driving and two replied they did so eventually. When asked if they had already had another traffic accident, 23 participants replied affirmatively and 40 had already witnessed traffic accidents.

When the interviewees were questioned about demerit points on their driver license, forty participants stated they did not have any during the year and 47 confirmed their regular driver license at the time of the accident. When asked about the demerit points, four participants said they had 5 points and one admitted having 7 points.

The interviewees were asked whether they had any information on RAs prevention. Thirty-seven replied positively: the main information sources were Traffic Department (Detran), with 26 cases; TV, with 4 cases; Internet, with 4 cases; others, with 3 cases. Forty-six participants said they did not usually use the National Health System (SUS).

DESCRIPTION OF THE ACCIDENTS

The interviewees were asked to report on the accident. Answers were transcribed and a similitude analysis was undertaken by IraMuTeQ, as Figure 1 shows.

Similitude analysis identified that the term ‘car’ was the reply’s basic factor. Most reports mention this type of vehicle as the cause of the accident or, in a few cases, the participant was using it. Most accidents occurred with motorcycles. Figure 1 shows deep links between motorbike and car, with 16 co-occurrences. Similarly, car and fronting (14 occurrences), as the text below reveals.

*“I was riding a motorbike delivering a product to a client when a car cut me off and I fell. It was fast. I only remember this and the helmet jetting off when I fell. When I came through, I was already in the hospital. It was not my fault. I was working and driving normally on the road” (I 15, male; 35 years old; high school without graduation).*

Another important aspect is the linking words “car”, “freeway” and “drunkard”. Some participants reported that the accident was caused by a drunken person, as the following shows:

*“I was driving a motorcycle from city x; I passed the speed bump; I was driving at 18 kph, when a person was returning from a party, I guess he was drunk, that is what they told me. He*

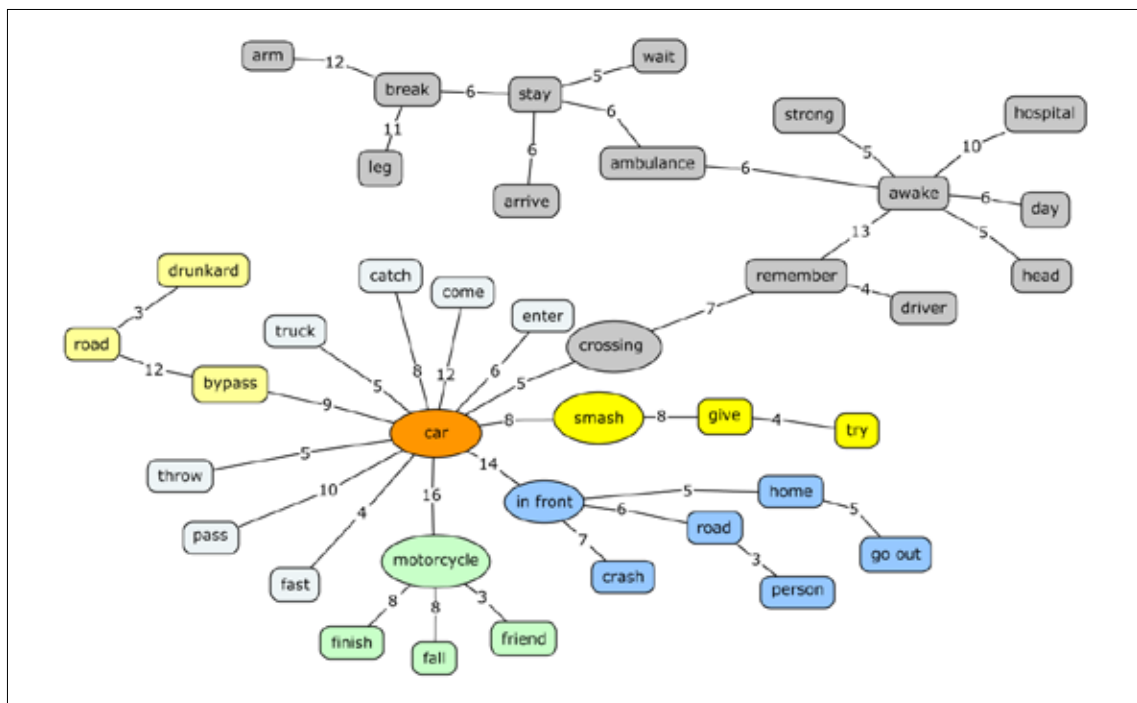


Figure 1. Similitude analysis



corpus into 5 classes, given in the dendrogram of Figure 3. It represents the most significant words of each class, followed by their occurrence in the class and its association ( $\chi^2$  test).

The first partition revealed the division of the corpus into two *subcorpora* where the general aspects of causality and values related to traffic violence (classes 4 and 1) were opposed to more specific and concrete aspects on the causes of the accidents, such as use of mobile, alcoholic beverages and high speed (Classes 3, 2 and 5). The second partition differentiated Class 5 from Classes 3 and 2, whilst the third partition differentiated classes 4 and 1 among themselves. Dendrogram and its content details will be described according to class distribution, from left to right.

Class 4, called “Violence” represents 20.4% of classified text segments, with no association with any variable on the line of command. The most frequent word in the class was “finished”, followed by “suffer”, “take”, “respect”, “violent”, “impatient”, “cause”, “smash” and “wrong”. Consequently, traffic violence is worked out from the point of view that society, as a whole, is violent, and that traffic is one of the several possibilities of the manifestation of the phenomenon, causing accidents:

*I think that, first, violence emerges within the unhappy life that people are currently experiencing. They give vent to this anger while driving. The feeling of fury that people have within them emerges, through traffic accidents. I guess this is a wrong attitude. When something happens to me, I let go. I will not forward discussions. Accidents are caused by imprudence, a badly signalized road; lack of patience (1 31; male; 47 years old; incomplete higher education).*

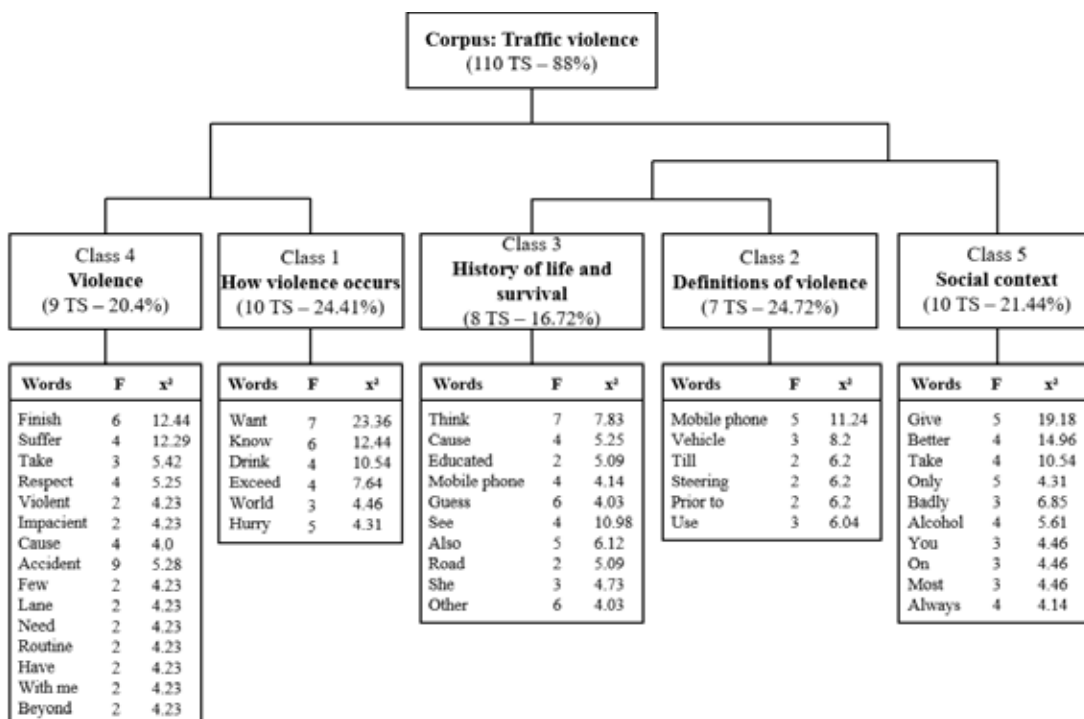


Figure 3. Dendrogram of the corpus Traffic Violence.

Class 1, called “How violence occurs”, represents 22.7% of text segments and it is associated with the variable “male”. The social representation of violence has a more concrete attribution through such verbs as “want”, “know”, “drink”, “pass”, “arrive”, associated with certain behaviors that may cause accidents, such as drink and drive, using mobile, being in a hurry, wanting to exceed other cars, including terms that indicate queues, bad road conditions and bad system, as may be surmised from the following text:

*People are greatly stressed. They are stressed due to a long time in queues to and from work; this makes you stressed, see. If they find a bypass, they want to gain time; consequently, traffic becomes violent. Many people take drugs; they drink a lot; this is bad; they do not drive correctly; traffic lessons are easy. Many people do not drive well. Selection should be more detailed (I 34; male; 37 years old; incomplete high school).*

Class 3, representing 18.2% of text segments, has been associated with the variable “schooling” and called “Education”. The participants reflect on the need to think better on what drivers are causing. They evoke cognitive aspects related to behavior, based on traffic violence with lack of drivers’ education to avoid accidents.

*I guess that more education is needed. People do not have much ethics. Besides, they do not show any respect for others. This is what I think about violence. This is what causes accidents. People who do not show education on the street, at home, at school, they do not have any respect for others on the road (I 01; male; 54 years old; incomplete higher education).*

Class 2, representing 15.9% of text segments, without associations with any variable, was called “Objectification of Violence”. Participants work out concrete explanations, or rather, they objectify violence through the abuse of alcoholic beverages, lack of good car conditions and lack of good road conditions, and mainly the use of the mobile telephone during driving, to explain traffic violence and accidents. The following extract illustrates this point.

*Irresponsible behavior, such as using the mobile telephone while driving, the consumption of alcoholic beverages prior to driving, excessive speed and the neglect of companies and owners to keep constantly their cars in order (I 16; female; 26 years old; incomplete higher education).*

Even the lack of proper traffic signs on the freeway has been mentioned:

*Lack of ability, lack of responsibility, lack of adequate signalization on the road and lack of respect for motorcyclists. Many people drive after drinking or use the mobile; many people exceed and they are in a hurry. Traffic signs are lacking. In my opinion, lack of respect causes traffic violence. (I 8; male; 19 years old; high school).*

Class 5 represents 22.7% of text segments and is associated to schooling variables, graduation course and female. It has been called “Social Context” since it contains information on experience with regard to participants’ accidents, involving their families too.

*Due to the accident, I missed a term in the undergraduate course I was taking and a vacancy as a trainee. The accident has affected my parents too since they had to pay the expenses. It also affected my relationship with them. The accident disfigured my body since I am feeling ugly and disheartened due to the several surgeries I had to undergo (I 16; female; 26 years old; incomplete higher education).*

The participants, victims of traffic accidents, reflect on traffic violence as a complex phenomenon involving several spheres, such as lack of ethics, education and empathy. These aspects mainly refer to car drivers who were extremely careless in their relationship with motorcyclists. In fact, most interviewed participants were motorcyclists. Participants also underscore situational variables, such as lack of car maintenance and lack of proper roads, all of which cause queues and stress in drivers.

## DISCUSSION

Most participants in current research were adult males, motorcyclists, going to or coming from work. Data similar to another study<sup>19</sup>. Data comply with statistical information that show that, in motorcyclists' RAs, there was an increase from 1.421 traffic fatalities in 1996 to 16.223 in 2012, a 1041% growth. Fatalities in the case of car drivers also increased, more gradually, with 82.7% rates during the 18 years under analysis<sup>4</sup>.

With regard to the participants' profile, based on the Pan-American Health Organization (OPAS)<sup>20</sup>, males up to 29 years old are the main victims of land transport accidents. As a rule, the literature indicates young males are prone to commit traffic violations and consequently involvement in grave and fatal RAs<sup>21,22,23,24</sup>.<sup>19</sup>The same happens in case of roadkill<sup>25</sup>.

In the case of displacements, most participants stated they were going to or coming from work. According to the Ministry of Social Health<sup>26</sup>, labor accidents are called typical when they occur with workers on their jobs. On the other hand, they are called trajectory accidents when they occur in the course of going to and coming from work. The above distinction is highly relevant for the prevention of accidents, even though they are no precise data for sharp identification<sup>27</sup>. This fact brings to the fore the public transport system in Brazil, used by most workers. The deficit triggers the sale of motorcycles as a type of daily transport. If the Brazilian public transport were more efficient, there would be probably less vehicles on the roads and RAs would decrease.

Current analysis showed that most participants earn an average of two minimum wages, corresponding to class D<sup>28</sup>. According to the most recent Worldwide Situation Report of WHO<sup>1</sup> on Traffic Safety, people living in low-wage countries have a three-fold chance of getting involved in traffic accidents than people in more developed countries. In other words, 70 out of 100 traffic fatalities worldwide live in low-wage countries. Africa has the highest mortality rates due to traffic accidents, whereas Europe has the lowest.

Another characteristic in traffic accidents is the fact that they occur on dry traffic lanes, which may indicate tiredness and/or imprudence of drivers, due to

the consumption of alcoholic beverages or to the use of mobiles, as they themselves confessed. As a rule, traffic victims attribute accidents to car drivers' lack of responsibility, especially their weariness. Drivers' wayward behavior is one of the multiple factors related to traffic accidents reported in the literature<sup>29,30</sup>. Being a risk to another group of persons, namely car drivers, will be discussed presently.

Accidents in which the participants were involved occurred in sites without any traffic monitoring. Several researches have underscored the role of police control<sup>31</sup> and their interaction with individual differences of those involved. Within the dissuasion theory, general dissuasion shows that people are motivated to avoid the negative consequences of committing crimes if they were warned of imminent penalties<sup>32,33</sup>. Such an approach is relevant to understand the efficaciousness of the application of traffic penalties, such as a heavy fine for high speeding<sup>34,35</sup>. However, other studies have shown that belonging to certain social categories that valorize aggressive behavior may modify these results<sup>36,37</sup>. It is common knowledge that, for instance, males are normally less sensitive to punishment<sup>37</sup>. The above complies with the fact that males are mostly involved in traffic accidents.

The SRs of traffic violence forward the participants' concept that society, as a whole, is violent, and that traffic is one of the phenomenon's manifestations. Many participants indicate lack of education, ethics and respect for other drivers, or rather, motor drivers vis-à-vis motorcyclists. In fact, few admit they took alcoholic beverages or were using mobiles at the time of the accident.

According to Moscovici<sup>12</sup>, when people face complex theoretical structures, such as RA violence, they try to give them meaning and transform abstract ideas into concrete images. They try to embody a new knowledge to more familiar structures. The same author insists<sup>12</sup> that phenomena may be studied through day-to-day situations and, therefore, by people who live in a society in which the phenomena are full of mobility and plasticity and in which communication has an important role.



SR theory presents a psycho-sociological perspective of knowledge with a strong sociological basis, without discarding subjective and cognitive processes. It articulates objective and subjective situations, individual and collective, psychological and social phenomena<sup>38</sup>. It gives us the opportunity to understand how the participants in current study elaborate individually and collectively the violent situation they experienced. Motorcyclists are convinced that they are an unfortunate group when compared to car drivers. This fact occurs because SRs are a kind of knowledge that makes possible communication and organizes social relationships<sup>39, 40, 41</sup>. One may perceive a negative intergroup behavior. When a person belonging to this group interacts collectively or individually with a person of the other group or with its members in terms of group identification, there is a type of intergroup behavior<sup>42</sup>, which, in this case, seems to be negative.

Doise<sup>43</sup>underscores the group's importance in the organization of a meaningful world as far as it sustains that the meaning of a social representation is always aligned to or imbedded in more general meanings involved in the relationships of the social field. In fact, certain ideas/representations make sense when they are appreciated as from knowledge and specific values towards other social groups. Consequently, as a form of knowledge socially constructed and shared<sup>44</sup>, SRs vary according to the context of social relationships in which individuals are inserted<sup>45</sup> imparting meaning to social groups and affecting their world view<sup>11</sup>. From such a perspective, one may better understand how individuals understand and posit themselves before a determined phenomenon<sup>46</sup>.

Deschamps and Moliner<sup>47</sup> observed that SRs may be a means for groups insisting on their particularities and differences and underscoring their importance in the analysis of inter-group dynamics. Consequently, sharing SRs provide status to different groups within society and sustain criteria that foreground hierarchies and social comparisons<sup>48,49</sup>. It seems that the motorcyclist group posits itself at a lower position in rights and status as having a greater RA risks due to the vehicle's insecurity and to the careless behavior of car drivers.

## CONCLUSION

Needless to say, current analysis does not discuss all the psychosocial aspects associated to RAs and on SRs of traffic violence. However, it is the author's conviction that it has forwarded several important factors to foreground a more in-depth debate on the subject. The negative intergroup relationship between the motorcyclist group and the car driver group should be underscored. Similarly, SRs of traffic violence forwarded by the participants should be highlighted, even though it indicates only few social and political aspects, such as lack of road maintenance, for instance. They concentrate on behavioral aspects attributed to members of the other group (car drivers), such as, lack of ethics, education, respect and care for motorcyclists.

Within a society where individual values are highly prized, such a result is meaningful. However, one should not forget that it is the responsibility of the State to properroads and to adopt a worker-friendly public transport so that workers may opt for a safe transport going to work and returning home. In fact, most accidents in current study occurred with young motorcyclist males going to work and returning home.

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