

Pedestrians' behaviours: errors, violations and lapses



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Traffic Accidents Statistic



- | Population Brazil: 183.987.291 millions (Censo, 2007).
- | Mortality Rates for External Causes (Gawryszewski & Rodrigues, 2006):
 - o For fatal injuries, homicides were the leading cause, 40.3% overall (28.8/100,000), followed by transport-related deaths, 26.2% overall (17.0/100,000).
- | More than 10,261 pedestrians were killed per year, being **28.7%** of the amount of the traffic deaths (Mello Jorge & Koizumi, 2007; IPEA/MPOG, DENATRAN & ANTP, 2006).
- o Traffic Accidents Statistic Bureau (RENAEST, 2007):
 - | Fatal victims: 19.910
 - o Drivers: 4.417
 - o Pedestrians: 4.395
 - o Passangers: 4.233
 - o Motocyclist: 3.243
 - o Cyclists: 1.243
 - o Others: 180
 - o No informed: 2.199

Caution!! These numbers need to be taken as lower bound values!!

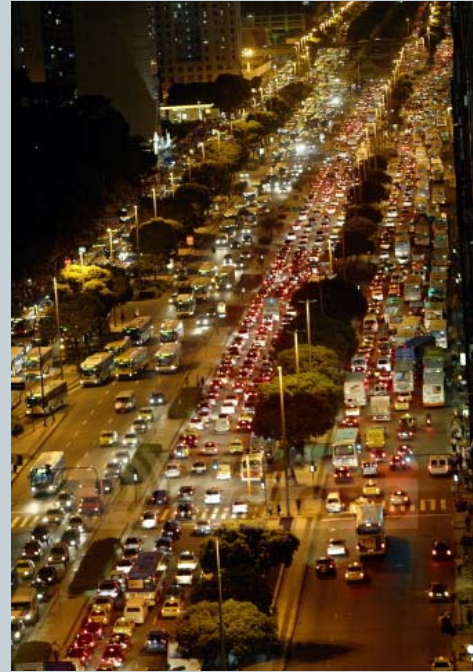
Traffic in Brazil



Raise of the number of vehicles



Growth of the urban population



Traffic in Brazil



Lack of a culture directed towards safety

Lack of surveillance





Education

Infrastructure



Picture from: Miranda & Cabral (2003)

Other problems...



- In Brazil, there is lack of studies concerning pedestrian behaviour and the risk factors (Velloso & Jacques, 2005; Cardoso et al., 2003).
- Most knowledge is based on foreign experience without sufficient studies of local needs or an adjustment to that reality in order to define the targeted intervention efforts (Faria & Braga, 2003).

It is only through studies about the Brazilian reality that suitable interventions could be created and a new culture in traffic that support public policies to decrease the pedestrian's fatalities developed (Cardoso et al., 2003; Marin & Queiroz, 2000).

Theory of Risk Behaviour

- Reason et al. (1990)
- Human risk behaviour: errors, violations and lapses
- Driver Behaviour Questionnaire (DBQ):
 - Violations: deliberate actions to infringe the rules such as exceeding the speed limit or close driving. They are associated with the attitudes and motivations (Rimmö & Åberg, 1999) and are influenced by social context (Reason, et al., 1990).
 - Errors: failure of planned actions to achieve their intended consequences and are unintentional, such as braking too quickly on slippery road. Errors are associated with individual cognitive processes (Reason et al., 1990).
 - Lapses: are memory and attention problems, including behaviours such as forgetting where the car is parked or using the wrong gear of the car. They only cause embarrassment and inconvenience.

Studies using DBQ

- Reason, et al., 1990; Rimmö & Åberg, 1999; Bianchi & Summala, 2002; Özkan et al., 2006
 - Men reported committing more violations than women.
 - Women reported committing more lapses than men.
 - Young drivers reported committing more violations than adults.
 - Older drivers reported committing fewer violations but more errors.
 - Those who consider themselves good drivers reported committing more violations.
 - Those who drive frequently reported committing more violations.

□ Motorcyclist (Elliot et al., 2007):

- Elliot et al. (2007) developed a Motorcycle Rider Behaviour Questionnaire (MRBQ), consisting of 43 items to measure the self-reported frequency of specific riding behaviour and test which types of behaviour predict motorcyclists' crash risk. The MRBQ found that traffic errors were the main predictors of crash risk.

□ Pedestrians (Moyano-Diaz, 1997; Moyano-Diaz, 2002):

- Moyano-Diaz (1997) developed a questionnaire of pedestrian and traffic behavior (PBQ) consisting of 16 five-point Likert type items. Men reported committing more transgressions than women, as young people commit more transgressions than adults. Errors and lapses did not show significant differences between gender and age (Moyano-Diaz, 1997; Moyano-Diaz, 2002).

□ *Participants and Procedures*

- 210 students from the city of Curitiba (Brazil)
- 75.20% females
- Age ranging from 17 to 49 (mean = 20.59 years, SD = 4.54)
- 40.5% had a driving license (CHN)
- 58.7% drive less than four hours per week.

□ *Materials*

- Pedestrians' Behaviour Questionnaire (PBQ), developed by Moyano Diaz (1997) in Chile, was translated into Portuguese.
- After translation from Spanish to Portuguese, a second bilingual person did a back-translation, and the author of the original work had checked the translation.



- 6-point scales to measure how often they carried out each of the PBQ behaviours:
 - 1. never; 2. hardly ever; 3. occasionally; 4. quite often; 5. frequently and 6. nearly all the time

- 17 items, each item described a specific behaviour that could be conducted by a pedestrian (error, violation or lapses):
 - Errors: e.g. ` I get impatient and pass the pedestrian in front of me if he or she does not cross the street when he/she can .`
 - Violations: e.g. ` I don't wait on the sidewalk to the "green man" but on the road`
 - Lapses: e.g. ` Suddenly I realize that I traveled several streets and intersections without paying attention to traffic`



Groups	Young (17-25)	Adults (25-49)	Men	Women	Drivers	Non-Drivers
Violations	3,09	2,66	3,38	2,93	3,14	2,98
Errors	3,70	2,80	3,80	3,54	3,59	3,64
Lapses	3,51	3,23	3,54	3,46	3,38	3,56

Never (1); hardly ever (2); occasionally (3); quite often (4); frequently (5); nearly all the time (6)

Discussion



- Gender and age is considered as risk factor among pedestrians (Moyano-Diaz, 1997; Ward et al., 1997; Toroyan & Peden, 2007; Mello Jorge & Koizumi, 2007).
- Regarding gender, men appear more likely to be involved in an accident (Ward et al., 1997; Toroyan & Peden, 2007) and commit more frequently violations (Moyano-Diaz, 1997).
- In Brazil - 2004 (Mello Jorge & Koizumi, 2007):
 - 7,825 men pedestrian died due traffic accident, while just 2,337 women died.
 - Between all pedestrian victims in Brazil, 50.6% had less than 10 years.

Interventions



- The knowledge about violations, errors and lapses might be able to improve educators and authority's actions concerning traffic issues and could also be used as a framework to design targeted interventions. The pedestrian should know the rules relating to their situation in traffic and be aware that their actions affect their safety and other's (Rozestraten, 2004).

Limitations of the Study

- **First:** the data were based on self-reports of behaviour. It is possible that some respondents overstated their answers by reporting low levels of violations and errors.
- **Second:** women and young people were overrepresented in this study making impossible to calculate significant differences between the groups.
- **Third:** exploratory factor analyses need to be done to attest the structure of the PBQ and its variables.
- A reapplication of the instrument in order to verify their factor structure and to compare it with the original is necessary because it is the first time that it's applied in Brazil and even in a small sample.

Thank You!

Obrigada!