

Injuries Resulting from Traffic and safety measures in latin-american immigrants living in Seville

Lesões por Acidentes de Trânsito e uso de medidas de segurança por imigrantes latino-americanos residentes em Sevilha

Lesiones a Consecuencia del Tráfico y uso de medidas de seguridad por inmigrantes latinoamericanos que viven en Sevilla

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Abstract

Theoretical framework: Injuries Resulting from Traffic (IRT) are the leading cause of death among young people worldwide. The risk of these injuries and the use of safety measures in young immigrants living in Seville are unknown.

Objectives: To estimate the monthly self-report prevalence of IRT and the use of safety measures in latin-american immigrants aged between 25 and 44 who lived in Seville (Spain) in 2011.

Methodology: A cross-sectional descriptive study was carried out in a representative sample of 190 immigrants.

Results: The results show that (1) 3.7% suffered an IRT, with a higher risk identified in men older than 35 years, who had at least completed secondary education and were unemployed or students, (2) 3.5% had driven a motorbike, car or bike after drinking alcohol or consuming other drugs; (3) most of them used safety belts (91.8% car) and helmets (77.8% motorcycle).

Conclusion: These findings suggest that latin-american immigrants who live in Seville have a significant risk of IRT. Nursing educational interventions are strongly recommended.

Keywords: alcohol drinking; drug users; traffic accidents; wounds and injuries; accident prevention; nursing care.

Resumo

Enquadramento: As Lesões por Acidentes de Trânsito (LAT) são a principal causa de morte entre os jovens a nível mundial. O risco destas lesões e o uso de medidas de segurança em jovens imigrantes que vivem em Sevilha não são conhecidos.

Objetivos: Estimar a prevalência mensal auto-relatada de LAT e o uso de medidas de segurança em imigrantes latino-americanos, com idades compreendidas entre os 25 e os 44 anos, residentes na cidade de Sevilha (Espanha) em 2011.

Metodologia: Estudo descritivo-transversal, com uma amostra representativa constituída por 190 imigrantes.

Resultados: Os resultados demonstram que: (1) 3,7% sofreram LAT, sendo que o risco é maior nos homens, com idade superior a 35 anos, desempregados ou estudantes, com formação pelo menos ao nível do ensino secundário; (2) 3,5% conduziram um motociclo, automóvel ou bicicleta depois de ingerirem álcool ou consumirem outras drogas; (3) a maioria usou cinto de segurança (91,8% em automóveis) e capacete (77,8% em motociclos).

Conclusão: Os imigrantes latino-americanos residentes em Sevilha têm um risco considerável de sofrer LAT, pelo que se recomendam intervenções de Enfermagem na área da educação para a prevenção deste tipo de lesões.

Palavras-chave: consumo de bebidas alcoólicas; usuários de drogas; acidentes de trânsito; ferimentos e lesões; prevenção de acidentes; cuidados de Enfermagem.

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Resumen

Marco contextual: Las Lesiones a Consecuencia del Tráfico (LCT) son la primera causa de muerte reconocida a nivel mundial entre los jóvenes. No se conoce el riesgo de estas lesiones ni el uso de medidas de seguridad de los jóvenes inmigrantes que viven en Sevilla.

Objetivos: Estimar la prevalencia mensual de LCT y el empleo de medidas de seguridad en inmigrantes latinoamericanos con edades comprendidas entre los 25 y los 44 años que residen en la ciudad de Sevilla (España) en 2011.

Metodología: Estudio descriptivo de corte transversal con una muestra representativa de 190 inmigrantes.

Resultados: Los resultados muestran que (1) un 3,7 % sufrió LCT, un riesgo que es mayor en hombres menores de 35 años, desempleados o estudiantes; (2) un 3,5 % condujo una moto, un coche o una bicicleta después de consumir alcohol u otras drogas, (3) la mayoría utilizó el cinturón de seguridad (91,8 % en coche) y casco (77,8 % en moto).

Conclusión: Los inmigrantes latinoamericanos que residen en Sevilla tienen un riesgo considerable de sufrir una LCT. Se recomienda llevar a cabo intervenciones de enfermería en educación para prevenir este tipo de lesiones.

Palabras clave: consumo de bebidas alcohólicas; consumidores de drogas; accidentes de tránsito; heridas y traumatismos; prevención de accidentes; atención de enfermería.

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Introduction

Injuries Resulting from Traffic (IRT) are the cause of 800.000 deaths annually in Europe (Sethi, Racioppi, Baumgarten, & Bertolini, 2006), as well as a large number of health problems (mainly physical). Specifically, in those countries of the Mediterranean Region, this rate of fatalities due to IRT is 28.5 per 100.000 inhabitants. This is well over the world average - 10.3 per 100.000 inhabitants (World Health Organization, 2009). This problem is especially important in young people since IRT is the leading cause of their death (WHO, 2009).

Due to the high rates of fatalities and health problems, the implementation of preventive measures is more important than ever in order to decrease the number of IRT. The study of this phenomenon is strongly relevant in the immigrant population, considering that they live in unfavourable socio-economical contexts in their host countries (Chakravarthy, Anderson, Ludlow, Lotfipour, & Vaca, 2010). One of the direct consequences is that they usually buy second-hand vehicles (Koziol-McLain, Brand, Morgan, Leff, & Lowenstein, 2000). This could bring about a significant increase in the number of accidents.

The immigrant population in Spain has drastically increased since 2000 (from 923.879 to 5.730.667 – an increment of 520%). Currently, this group represents 12.2% of the Spanish population nationwide and 4.2% in Seville (Spanish Statistical Office, 2012). Most of this immigrant population comes from Latin America. In order to have a realistic view of the situation of immigration in Spain, and because the empirical evidence is very scarce, it is necessary to analyse the accident rate and the use of safety measures.

Therefore, the aim of this research is to estimate the monthly self-reported prevalence of IRT and the use of safety measures in Latin-American immigrants (aged between 25 and 44) who lived in Seville (Spain) in 2011.

Background

According to the WHO (2009), IRT could be understood as an injury, fatal or not, that has occurred as a result of a road collision in which at least one vehicle in motion has been involved.

Not only are the fatalities important, it also has to be considered that the severe physical problems of IRT undoubtedly have a significant impact on the health status.

In Spain, there were 83.027 traffic accidents in 2011 in which 2.060 people died. A total of 89% of the victims suffered minor injuries. In Andalusia, IRT is the leading cause of death in young people (EASP, 2012), Seville being one of the cities with the highest accident rate and number of victims.

The previous literature has identified the key role that age (Chandran, Sousa, Guo, Bishai, & Pechansky, 2012), gender (NHTSA, 2009; CEPV, 2011; EASP, 2012), educational level (CEPV, 2011; Seath, Holakouie, Asadi-Lari, Abbas, & Malek-Afzali, 2012) and marital status (Whitlock, Norton, Clark, Jackson, & MacMahon, 2004) have on the IRT, although some of the effects are not completely clear.

With regard to the measures implemented to avoid accidents, the WHO (2012) states that the use of safety belts and helmets decreases the risk of death by 40%, and the risk of severe trauma by over 70%.

Notwithstanding, the European Monitoring Centre for Drugs and Drug Addiction (EMCDDA, 2008) estimated that 1.3% of the population who drive a car, do so under the influence of a combination of alcohol and drugs of abuse - this being the cause of several accidents (Drummer et al., 2004).

Research Questions

In view of the above and considering the need for information on the IRT concerning immigrants in Seville aged 25-44 years, our research question is to study the prevalence of IRT in the latin-american adult immigrant population living in Seville and its relationship with the use of protection measures.

Methodology

A cross-sectional descriptive study was carried out between 2010 and 2011 using some sections of the Behavioural Risk Factor Surveillance System survey of the Centers for Disease Control and Prevention in the United States (the Spanish version is also available on the website).

For this investigation, immigrants were considered to be any people who, being from a country of origin other than Spain, at the time of the survey had established their habitual residence in the national territory. This corresponds to the concept used by the National Statistics Institute in its National Immigrant Survey in 2007.

Data collection was exclusively carried out by an interviewer. This collection was carried out randomly in all the city's districts according to the following criteria: (1) male or female resident in any of the Official Neighbourhoods or Census Districts of the 11 administrative districts in Seville, (2) aged between 25 and 44 years, (3) having been born in one of the countries considered by the United Nations in its ranking of nations, territories and regions as Latin America or South America (Argentina, Bolivia, Brazil, Chile, Colombia, Cuba, Ecuador, Paraguay, Peru, Uruguay, Venezuela) and having migrated to Spain, and (4) having the ability to communicate and understand the requirements of the study and sign the informed consent.

For the recruitment of participants, various associations and groups of latin american immigrants were contacted in the district to facilitate data collection. The procedures used to conduct this study have followed the ethical principles of the Declaration of Helsinki of the World Medical Association 1964 (updated 2008), with the approval of the Ethics and Experimentation Committee of the University of Seville, adjusted to the regulations in Spain and the European Union for research involving human subjects. Informed written consent was obtained and, in relation to the socio-demographic data, in order to protect their honour, anonymity and privacy, according to the Organic Law 15/1999 of Protection of Personal Data, the questionnaires were numbered. When data collection was completed, data were put into a protected computer database, randomly checking the internal validity of each of the answers. In order to ensure the study's validity and reliability (Cronbach's $\alpha = 0.71$), a previous pilot study (González-López et al., 2010) was conducted.

The final sample was composed of 190 Latin American, 25-44 year-old immigrants who lived in Seville (Spain). Data were analysed with SPSS, version 21.0 for Windows. Descriptive analyses were performed, using central tendency and dispersion measurements for quantitative variables and proportions for categorical

variables. The relationships of variables of interest were explored using the statistics given for Pearson (χ^2) independent samples. If the expected values of the columns in the contingency tables were 5, Fisher's test was used.

Results

In this article, the results relate to: a) the respondents' socio-demographic data (gender, age, educational level, country of birth, marital status - married or cohabiting without marriage, single, separated or widowed, length of stay in Spain and current occupation), b) injuries as a result of traffic accidents (as a driver, passenger or pedestrian) and c) road safety behaviours behind the wheel (use of helmet for bicycles and motorcycles, use of seat belts in cars), all during the past 12 months.

Demographic Characteristics

The demographic profile of the sample of 190 participants was as follows: the mean age was 33.8 ± 6.3 years, 60% were women. According to marital status: 45.3% were married, 36.8% single and, 8.9% lived with a partner without being married. In terms of educational level: 3.7% had no studies, 15.3% had primary studies, 40% secondary education, 16.8% higher education, while the remaining 24.2% had university degrees. By country of origin, from the highest to lowest contribution to the sample were: Bolivia (32.6%), Peru (18.9%), Colombia (16.8%), Ecuador (11.1%), Paraguay (5.2%), Chile (4.2%), Brazil (1.6%), Nicaragua (1.1%), and Argentina and Cuba (0.5% each). By analysing the residence time in Spain, the sample was found to have an average of 5.4 ± 3.6 years, slightly higher than the average residence time in the city of Seville (4.6 ± 3.2 years). Concerning their current occupation, employees were found to be the most frequent (59.3%), followed by the self-employed (18.4%), the unemployed (10.5%), students (6.8%), and housewives (4.7%).

Multivariable Analysis

With regard to IRT, 3.7% (7 individuals) said they had suffered an injury of this type in the last month, and specified the event - all in cars. In regard to the health care necessary for the seven people injured, two were attended to in Emergencies, two spent the night at

the hospital and two did not seek care, while one person did not answer what the attendance was. Table 1 shows that, although there were no significant differences in the prevalence according to the socio-demographic variables studied, the risk of IRT was

higher in: men, those under 35, those with secondary education or higher, in people living with someone, those who were unemployed or students; and it was striking that there was a tendency to be at a higher risk as residence time in Spain increased.

Table 1

Monthly prevalence of having suffered IRT and of having driven (car, motorcycle or bicycle) after consuming alcohol or other drugs according to socio-demographical variables.

Variable	Suffered IRT			Driving after consuming alcohol or other drugs		
	n/N	%	CI _{95%}	n/N	%	CI _{95%}
Total	7/190	3.7	1.8-7.4	6/171	3.5	1.6-7.4
Gender						
Male	4/76	5.3	2.0-12.7	5/69	7.4	0.3-15.8
Female	3/114	2.6	0.8-7.2	1/102	1.0	0.1-5.6
Age in years						
25 - 34	6/101	5.9	2.7-12.4	5/92	5.4	2.3-12.1
35	1/89	1.1	0.2-6.1	1/79	1.3	0.2-6.8
Marital status						
Married	4/103	3.9	1.5-9.5	4/93	4.3	1.7-10.5
Unmarried	3/87	3.4	1.2-9.6	2/78	2.6	0.7-8.8
Level of studies						
Primary or less	0/36	0.0	-	1/33	3.1	0.5-15.3
Secondary or above	7/154	4.5	2.2-9.1	5/138	3.6	0.2-8.2
Time of residence in Spain in years						
5	3/111	2.7	0.9-7.6	3/98	2.7	0.1-8.6
6 - 10	3/57	5.3	1.8-14.3	3/55	5.7	1.8-17.4
11	1/14	7.1	1.2-31.4	0/11	0.0	-
Current employment						
Employee	4/113	3.5	1.4-8.8	4/102	4.0	0.1-9.6
Self-employed	1/35	2.9	1.6-18.6	0/33	0.0	-
Unemployed	1/20	5.0	0.9-23.6	1/18	5.6	0.9-25.7
Housewife	0/9	0.0	-	0/7	0.0	-
Student	1/13	7.7	1.4-33.3	1/11	9.1	1.6-37.7

The same Table also shows that 3.5% of respondents had ridden a bicycle or motorcycle or driven a car after consuming alcohol or other drugs in the last month. A similar picture could be found to that described in IRT characterisation, except that the difference of gender in this prevalence was statistically significant (Fisher test $p = 0.034$).

In the last month, 57.8% (110 people) had travelled by car as a driver or passenger in the city, by road or motorway, 9.5% (18 people) on motorcycles and 28.4% (54 people) by bicycle. Table 2 shows that 91.8% of those who travelled by car always used safety measures, as did 77.8% of those who rode a motorcycle, while only one in ten participants (11.1%) always used a helmet when cycling.

Table 2

Proportion of the use of safety measures according to the transport used in the last month.

Frequency	% Car (n=110)	% Motorcycle (n=18)	% Bicycle (n=54)
Always	91.8	77.8	11.1
Often	6.4	22.2	1.9
Sometimes	0.9	0.0	5.6
Never	0.9	0.0	81.5

Discussion

Our study shows that 3.7% of the latin-american immigrant population who lived in Seville in 2011 suffered IRT in the past month. Predicting for a year, this would represent the significant proportion of 44.4%. This result is really relevant since it is well above the annual self-reported rate of IRT of those who needed health care in Spain (2% - SSO, 2002). The high expected annual prevalence of IRT described in our work could be explained by the need for immigrants to travel many miles to go to their workplace and the acquisition of second-hand vehicles (Koziol-McLain et al., 2000).

It should be noted that 71% of the study participants who reported having suffered IRT needed assistance from a health care professional (at the hospital or health care centre). This percentage is above the 23% found in foreign people living in Spain (Peiró-Pérez et al., 2006). Nevertheless, the IRT victims in our research were not seriously injured. This is consistent with the Spanish official data of 2010.

In relation to socio-demographic variables, we found that people under 35 were more likely to have suffered IRT than those aged 35 and above. This evidence is consistent with the results of Chandran et al. (2012) and NHTSA (2009), and it was explained by its association with the driving experience. Our research also shows that the risk of IRT was greater in men (NHTSA, 2009; CEPV, 2011; EASP, 2012). This has been explained by the fact that women have better road safety behaviours than men (Aravena, Aróstica, & Aguirre, 2012). Furthermore, males, and especially young males, are associated with reckless road behaviour. This endangers their lives as well as those of others (CEPV, 2011). The educational level has been associated inversely with the probability of this type of injury (Seath et al., 2012) and the severity

of the accident (CEPV, 2011). When analysing their occupation - a variable very close to this - our study indicates that the prevalence of self-reported IRT was higher in those who are unemployed and students (Sehat et al., 2012). This may be due to the higher need of travelling to look for a job. In terms of marital status, we found that married people or people who cohabit were more likely to have had IRT than the other groups. This is not in line with the findings of Whitlock et al. (2004).

Continuing with the analysis of road safety, 92% of those who travelled by car had always used seat belts in the past month. It is noteworthy that 1% of this sample never used seat belts. This is similar to the results from the National Survey of Health by the Ministry of Health and Consumption in 2006.

In car collisions, it is known that bicyclists suffer less severe injuries than pedestrians. This could be due to the use of helmets (Peng, Chen, Yang, Otte, & Willinger, 2012). However, our results reveal that only 11% of bicyclists always used a helmet.

Turning to other aspects that should be reviewed from the information obtained in this study on road safety, nearly 4% of the respondents were found to have driven under the influence of alcohol or other drugs. This affects driving ability and, consequently, increases the likelihood of traffic accidents (Wong, Gutiérrez, & Román, 2010). The NHTSA (2009) found that the risk of drinking before driving was higher in men than in women and in younger people. This is consistent with our research in the group of immigrants.

This study has some limitations that should be taken into account: the participants' responses to the survey questions were self-reported, which means any response could be subjective and influenced by factors that were not under the researchers' control. However, the anonymity of the questionnaires

favoured greater honesty when answering questions. Another limitation is that the cross-sectional nature of the study does not enable us to establish a causal relationship between the risk of IRT and the independent variables studied. Nevertheless, it was possible to explore some associations which would allow us to design future analytical studies that more precisely indicate the sense of the relationships of these variables.

Conclusion

From this study it can be concluded that latin-american immigrants from the city of Seville have a considerable risk of IRT (3.7% in the last month). This is a major public health issue. This risk is higher in men, aged under 35, with secondary education or above and in people who do not live alone. The results also reveal that most of them use safety measures when they go in cars or ride motorcycles (91.8% and 77.8%, respectively), even though this is not so usual when they go by bicycle (11.1%). Regarding driving under the influence of alcohol or other drugs, 3.5% of our sample recognised having done so.

Nursing educational interventions to improve the road safety behaviours of these immigrants are recommended to promote awareness concerning these risk behaviours. They should be focused on the importance of the use of safety belts, helmets and not driving after consuming alcohol and/or drugs. Particularly, special emphasis should be given to the use of safety measures when they ride a bicycle since, according to the results, they usually do not do so. This study could also help to improve the orientation of nursing preventing interventions as the profile of the Latin-American immigrants with a higher risk of IRT has been identified.

Further research is also needed about the road safety behavior of the immigrant population and about other aspects that can influence the risk of IRT.

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Analysis of health behaviours and prevalence of diseases of native and immigrant populations in the city of Seville in which this manuscript is integrated.

References

- Aravena, O. W., Aróstica, L. F., & Aguirre, N. D. (2012). Perfil de riesgo para accidente automovilístico en jóvenes universitarios. *Revista Chilena de Estudiantes de Medicina*, 6(1), 37-44. Retrieved from <http://www.acemuchile.cl/revista/index.php/secciones/trabajos-originales/item/9-perfil-de-riesgo-para-accidente-automovilistico-en-jovenes-universitarios>
- Centro para el Estudio y la Prevención de la Violencia (CEPV). (2011). *Informes criminológicos en la delincuencia contra la seguridad vial*. Retrieved from http://www.crimina.es/documentos/documentos/00209/Proyecto_GrADeT.pdf
- Chakravarthy, B., Anderson, C. L., Ludlow, J., Lotfipour, S., & Vaca, F. E. (2010). The relationship of pedestrian injuries to socioeconomic characteristics in a large Southern California County. *Traffic Injury Prevention*, 11(5), 508-513. Retrieved from <http://www.tandfonline.com/doi/full/10.1080/1538958.2010.497546>
- Chandran, A., Sousa, T. R., Guo, Y., Bishai, D., & Pechansky, F. (2012). Road traffic deaths in Brazil: Rising trends in pedestrian and motorcycle occupant deaths. *Traffic Injury Prevention*, 13(Suppl 1), 11-16. Retrieved from <http://www.tandfonline.com/doi/full/10.1080/1538958.2011.633289>
- Drummer, O. H., Gerostamoulos, J., Batziris, H., Chu, M., Caplehorn, J., Robertson, M. D., & Swann, P. (2004). The involvement of drugs in drivers of motor vehicles killed in Australian road traffic crashes. *Accident Analysis & Prevention*, 36(2), 239-248. Retrieved from <http://www.sciencedirect.com/science/article/pii/S0001457502001537>
- Escuela Andaluza de Salud Pública (EASP), Servicio Andaluz de Salud, Consejería de Salud y Bienestar Social. (2012). *Resultados y calidad del sistema sanitario público de Andalucía*. Retrieved from <http://www.calidadsaludandalucia.es/es/index.html>
- European Monitoring Centre for Drugs and Drug Addiction (EMCDDA). (2008). *Drug use, impaired driving and traffic accidents*. Retrieved from http://www.drugsandalcohol.ie/11626/1/EMCDDA_Insights_8.pdf
- González-López, J. R., Lomas- Campos, M. M., García-Fernández, J., Pascualvaca-Armario, J., Guardado-González, M. J., Muñoz-Guardado, B., & Lagares-Vallejo, E. (2010). Conductas de salud en inmigrantes latinoamericanos adultos del Distrito Macarena de Sevilla (España). *Investigación y Educación en Enfermería*, 28(3), 384-395. Retrieved from <http://aprendeenlinea.udea.edu.co/revistas/index.php/ice/article/viewArticle/7606/7541>

- Koziol-McLain J., Brand D., Morgan D., Leff M., & Lowenstein S. R. (2000). Measuring injury risk factors: Question reliability in a statewide sample. *Injury Prevention*, 6(2), 148-150. Retrieved from <http://injuryprevention.bmj.com/content/6/2/148.short>
- National Center for Statistics and Analysis (NHTSA's). (2009). *Traffic safety facts 2006: Race and ethnicity*. Retrieved from <http://www-nrd.nhtsa.dot.gov/pubs/810995.pdf>
- Peiró-Pérez, R., Seguí-Gómez, M., Pérez-González, C., Miralles-Espí, M., López-Maside, A., & Benavides, F. G. (2006). Road traffic, leisure, domestic and workplace injuries. A description of the situation in Spain. *Gaceta Sanitaria*, 20(Suppl 1), 32-40. Retrieved from <http://www.sciencedirect.com/science/article/pii/S0213911106715643>
- Peng, Y., Chen, Y., Yang, J., Otte, D., & Willinger, R. (2012). A study of pedestrian and bicyclist exposure to head injury in passenger car collisions based on accident data and simulations. *Safety Science*, 50(9), 1749-1759. Retrieved from <http://www.sciencedirect.com/science/article/pii/S0925753512000689>
- Sehat, M., Holakouie, K., Asadi-Lari, M., Abbas, A., & Malek-Afzali, A. (2009). Socioeconomic status and incidence of traffic accidents in Metropolitan Tehran: A population-based study. *International Journal of Preventive Medicine*, 3(3), 181-190. Retrieved from <http://www.ijpm.mui.ac.ir/index.php/ijpm/article/view/284/403>
- Sethi, D., Racioppi, F., Baumgarten, I., & Bertollini, R. (2006). Reducing inequalities from injuries in Europe. *Lancet*, 368(9554), 2243-2250. Retrieved from [http://www.thelancet.com/journals/lancet/article/PIIS0140-6736\(06\)68895-8/abstract](http://www.thelancet.com/journals/lancet/article/PIIS0140-6736(06)68895-8/abstract)
- Spanish Statistical Office (SSO). (2002). *Spanish National Health Survey 2001*. Retrieved from <http://www.msssi.gob.es/estadisticas/microdatos.do>
- Spanish Statistical Office (SSO). (2012). *Municipal register at 1st January 2012*. Retrieved from <http://www.ine.es/jaxi/menu.do?type=pcaxis&path=/t20/e245/&file=inebase&L=1>
- Whitlock, G., Norton, R., Clark, T., Jackson, R., & MacMahon, S. (2004). Motor vehicle driver injury and marital status, a cohort study with prospective and retrospective driver injuries. *Journal of Prevention*, 10(1), 33-36. Retrieved from <http://www.ncbi.nlm.nih.gov/pmc/articles/PMC1756540/pdf/v010p00033.pdf>
- Wong, P., Gutiérrez, C., & Román, F. (2010). Self-reporting of road traffic accidents in a national survey of urban population in Peru. *Revista Peruana de Medicina Experimental y Salud Pública*, 27(2), 170-178. Retrieved from http://www.scielo.org/scielo.php?script=sci_arttext&pid=S1726-46342010000200003
- World Health Organization (WHO). (2009). *Global status report on road safety: Time for action*. Retrieved from <http://www.un.org/ar/roadsafety/pdf/roadsafetyreport.pdf>
- World Health Organization (WHO). (2012). *Road traffic injuries*. Retrieved from: <http://www.who.int/mediacentre/factsheets/fs358/en/index.html>

