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ORIGINAL ARTICLE

ANALYSIS OF TRAUMA IN THE ELDERLY HOSPITALIZED BY TRAMPLING ANÁLISE DO TRAUMA EM IDOSOS INTERNADOS POR ATROPELAMENTO ANÁLISIS DEL TRAUMA EN LOS ANCIANOS HOSPITALIZADOS POR ATROPELLO

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ABSTRACT

Objective: analyzing the trauma in elderly hospitalized for trampling. **Method:** a cross-sectional descriptive study with elderly inpatients by trampling in an emergency hospital of Teresina/Piauí, northeastern Brazil, in the years 2010 and 2011. The data were collected from medical records using a form, further processed in Microsoft Excel and analyzed using SPSS. The research project was approved by the Ethics Committee in Research, with CAAE 02342412900005393. **Results:** of the 73 victims, 56,2% were male, 52,1% aged 60-69, and married (52,1%). The most affected body regions were the lower limbs and the head (28,8%). **Conclusion:** it is necessary education and awareness in traffic through educational and punitive measures, occurred in motorcyclists, the main involved in the trampling. **Descriptors:** Seniors; Traffic Accidents; Injuries; Nursing.

RESUMO

Objetivo: analisar o trauma em idosos internados por atropelamento. **Método:** estudo descritivo transversal, com idosos internados por atropelamento em um hospital de urgência de Teresina/PI, Nordeste do Brasil, nos anos de 2010 e 2011. Os dados foram coletados nos prontuários utilizando um formulário, posteriormente processados no Microsoft Excel e analisados no SPSS. O projeto de pesquisa foi aprovado pelo Comitê de Ética em Pesquisa, com o CAAE 02342412900005393. **Resultados:** das 73 vítimas, 56,2% eram do sexo masculino, 52,1% na faixa etária de 60-69 anos; casadas (52,1%). As regiões corpóreas mais atingidas foram os membros inferiores e a cabeça (28,8%). **Conclusão:** é necessária a educação e conscientização no trânsito por meio de medidas educativas e punitivas, ocorridas nos motociclistas, principais envolvidos nos atropelamentos. **Descritores:** Idosos; Acidentes de Trânsito; Lesões; Enfermagem.

RESUMEN

Objetivo: analizar el trauma en los ancianos hospitalizados por atropello. **Método:** estudio descriptivo transversal, con los pacientes ancianos ingresados en un hospital de urgencias por atropello en Teresina/Piauí, en el noreste de Brasil, en los años 2010 y 2011. Los datos se obtuvieron de los registros médicos, mediante un formulario, posteriormente procesados en el Microsoft Excel y analizados con el programa SPSS. El proyecto de investigación fue aprobado por el Comité de Ética en Investigación con CAAE 02342412900005393. **Resultados:** de las 73 víctimas, el 56,2% eran hombres, el 52,1% de 60-69 años; casadas (52,1%). Las regiones del cuerpo más afectadas fueron las extremidades inferiores y la cabeza (28,8%). **Conclusión:** es necesaria la educación y la sensibilización en el tráfico a través de medidas educativas y punitivas, que ocurre en los motociclistas, principales envueltos en el atropello. **Descriptor:** Mayores; Accidentes de Tránsito; Lesiones; Enfermería.

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INTRODUCTION

Aging is associated with different biological, functional and biochemical changes of the body and indirectly linked to social and demographic transformations resulting from globalization.¹ Among the various changes undergone by the body with advancing age there are the sensory changes such as hearing, vision and balance, which, together or not with physiological changes, leave the weak, elderly susceptible and exposed to injuries by external causes, among which stand out the accidents and violence, which are the subject of concern among health professionals, with a view to greater difficulty of rehabilitation in this population due to the characteristics of age.¹⁻³

In traffic pedestrians are considered vulnerable because they are unprotected users, representing a large proportion of serious accidents, injuries or deaths that occur. Thereby constitute themselves as the victims most likely to be hospitalized or die after suffering an accident. In Brazil the majority of victims who dies are pedestrians, they account for about 50% of all hospitalizations for injuries caused by accidents.⁴⁻⁵

Injuries and deaths resulting from traffic accidents appear as a serious and complex public health issue for joining the economic and technological development of modern society, by occasioning a high number of deaths and sequelae, despite being preventable and avoidable injuries.⁶

Among the elderly victims of traffic accidents males constitute the majority prevails among the elderly in traffic this genre, becoming more exposed to accidents of this nature and have head injuries, neck injuries in multiple body regions, upper limbs, the trunk and lower limbs, protruding head injury (TBI), first in quality, severity, and also how the injury entails great sequels, disability and handicap.⁷⁻¹¹

This study is of great importance, since it is clear the increase in the vehicle fleet in Piauí/PI, northeastern Brazil, a rising incidence in the number of cases of trampling across the capital and the number of elderly

victims of transit accidents and its consequences. Thus, in view of the mentioned aspects, the study aims to analyze the trauma in elderly hospitalized for trampling.

METHOD

Descriptive cross-sectional study performed in a public hospital of reference in the care of Emergency and Urgency Department of the city of Teresina-Piauí, in the period from March to May 2013, through research in the archived files in the Department of Medical Records and Statistics (SAME).

The population consisted of elderly victims of traffic accidents by trampling hospitalized in the years 2010 and 2011, totaling 73 subjects.

For data collection was used a form containing socio-demographic data and relating to the circumstances of the accident: date, day of the week, pre-hospital transport type vehicle involved, location of body hit by trauma, according to the ICD 10 and output condition of the elderly after hospitalization.

The data were imported and analyzed using the *Statistical Package for Social Sciences (SPSS)* version 19.0, in which was generated tables.

The study was approved by the ethics committee on human research under CAAE number 02342412900005393.

RESULTS

Table 1 shows that 56,2% of the total underfoot victims were male, with ages located between 60-64 and 90-99 years old, the mean age was 69,4 (SD=7,1), median 69, ranging between 60 and 92 years old. Of all the victims 52,1% were married, 39,7% had ignored education and 35,6% had primary education.

Table 1. Distribution of hospitalized elderly by trampling in a Hospital of Urgency according to gender, age group, marital status, and education. Teresina, 2010-2011.

Variables	Average (Standard Deviation)	Median	Observed Variation	Number	%	
Age	69,4(7,1)	69	(60; 92)	60 ---- 69	38	52,1
				70 ---- 79	29	39,7
				80 ---- 89	4	5,5
				90 ---- 99	2	2,7
				Total	73	100,00
Gender						
				Male	41	56,2
				Female	32	43,8
				Total	73	100,00
Marital Status						
				Single	14	19,2
				Married	38	52,1
				Divorced	3	4,1
				Widower	7	9,6
				Ignored	11	15,1
Shooling				Total	73	100,00
				Illiterate	15	20,5
				Basic school	26	35,6
				High school	3	4,1
				Ignored	29	39,7
				Total	73	100,00

Table 2 shows Fridays (27,4%), Wednesdays (17,8%) and Saturdays (16,4%) as the days of the week those have most accidents, 76,7%

occurred were assisted by Mobile Medical Service (SAMU), and 50,7% of pedestrian accidents were caused by motorcycle.

Table 2. Distribution of hospitalized elderly by trampling in a Hospital of Urgency according to the day of week, pre-hospital transport type and vehicle involved in the accident. Teresina, 2010-2011.

Variables	n°	%	
Week days	Monday	6	8,2
	Tuesday	8	11,0
	Wednesday	13	17,8
	Thursday	10	13,7
	Friday	20	27,4
	Saturday	12	16,4
	Sunday	4	5,5
Pre-hospital transport type	SAMU	56	76,7
	Private vehicle	2	2,7
	Ignored	15	20,5
Vehicle involved in the accident	Bicycle	2	2,7
	Motorcycle	37	50,7
	Automobile	9	12,3
	Bus	1	1,4
	Ignored	24	39,4
Total	73	100,00	

Table 3 shows the location of the affected body according to ICD 10, highlighting the traumas of the lower limbs and head, corresponding to 28,8%, respectively, as well as stand up injuries in multiple regions (16,4%).

Table 3. Distribution of hospitalized elderly by trampling; in a hospital of urgency according to the location of the body hit and their CID 10. Teresina, 2010-2011.

Location of the body according to ICD 10	Number	%
Lower limbs (S70-S99)	21	28,8
Head trauma (S00-S09)	21	28,8
Trauma to multiple regions (T00-T07)	12	16,5
Upper limb trauma (S40-S69)	11	15,0
Trauma abdomen, back, spine (S30-S39)	5	6,8
Chest trauma (S20-S29)	2	2,7
Non-traumatic intracranial haemorrhage (I62)	1	1,4
Total	73	100

Table 4 shows that was discharged to the output condition more frequently in all types of lesion based on ICD-10 (64,2%). Whereas the output condition death, it appears that the majority occurred among victims of head

trauma (5,5%), highlighting the total deaths (11%) among the elderly get hit.

Table 4. Distribution of hospitalized elderly by trampling in a hospital of urgency according to the output condition according to the lesion based on ICD 10. Teresina, 2010-2011.

	Output condition										Total	
	Discharge		Transference		Evasion		Death		Ignored		n	%
	Nº	%	Nº	%	Nº	%	Nº	%	Nº	%		
Injury based on ICD 10												
Lower limbs trauma (S70-S99)	1621,9		4	5,5	0	0	1		0	0	21	
							1,4				28,8	
Head trauma (S00-S09)	1520,5		1	1,4	1	1,4	4		0	0	21	
							5,5				28,8	
Traumatic multiple regions (T00-T07)	6	8,2	4	5,5	0	0	1		1		12	
							1,4		1,4		16,5	
Upper limb trauma (S40-S69)	5	6,8	4	5,5	0	0	2		0	0	11	
							2,7				15,0	
Trauma in abdomen, back and spine (S30-S39)	2	2,7	3	4,1	0	0	0	0	0	0	5	6,8
Chest trauma (S20-S29)	2	2,7	0	0	0	0	0	0	0	0	2	2,7
Non-traumatic intracranial haemorrhage (I62)	1	1,4	0	0	0	0	0	0	0	0	1	1,4
Total	4764,2		16		1	1,4	8	11	1	1,4	73	
			22,0								100	

DISCUSSION

There was a predominance of males in the victims of traffic accidents by vehicles. At this stage of life men circulate more frequently in the urban area, while women tend to stay closer to their homes and this results in a greater exposure of males to traffic accidents. The data corroborate with other studies, which found that most victims of traffic accidents were male.^{10,12-3}

With respect to age, research confirms the vulnerability of people aged 60 years or more to car accidents, reinforced in our study shows that the age group between 62-69 years as most underfoot victims in traffic apparel. The automobile accident is the leading cause of trauma-related death in the age group 65-75 years it takes to reflect that seniors have gained improvements in quality of life that cause changes in the behavioral pattern of the same, leading to greater exposure of these people to staff offenders, such as traffic accidents.¹⁴⁻⁵

In a study performed in a Hospital de Base, São José do Rio Preto-SP, the average age of the elderly trauma victims was 77 years, range 65-95 years; fact that approximates the one found in this study.¹⁵

With regard to marital status, we found a predominance of married people, then the single. Some studies have also detected this finding, but further research showed that the majority of victims of traffic accidents were female, authors say that the absence or presence of wife and children and can influence male behavior in traffic and highlight the need more studies related to this issue.¹⁶⁻⁸

When it comes to schooling, prevalent victims of trampling having skipped school in the registration records, followed by those who had primary education. The omission of

data in medical records victim worked as a negative aspect for this study, since during the admission of the injured in the hospital, some data are no longer collected by the officials responsible for the care of patients due to the urgency of the situation or human error. Study finds that this factor is of concern, given that it is expected that the information obtained in the hospital record is as complete as possible.¹⁹

As for the day of the week, it was noted that pedestrian collisions occurred mainly on Fridays, Wednesdays and Saturdays. These data corroborate other studies that reported that the most common car accidents days are Monday and Saturday. While other studies conducted in São Paulo, Rio de Janeiro and Porto Alegre show Saturday and Sunday as days of the week that occur greater number of traffic accidents. Thus, it is evident that on weekends the risk for the occurrence of a traffic accident increases because usually most workers are off, there is less movement of vehicles on the streets and carelessness about the greetings of traffic laws associated with alcoholic beverages.²⁰⁻³

Most elderly patients arrived at the hospital by Service Mobile Emergency-SAMU-, which was also found in a survey conducted in Belo Horizonte/MG, which found that 49,7% of victims of traffic accidents were transported by the service pre-hospital. These services are very driven, especially in cases of victims with serious injuries and the same is associated with a shorter time between the accident and arrival at the hospital, as well as a more appropriate care to preserve the life of the victim.²⁴

We found that, in relation to the vehicle involved the motorcycle is the major carrier responsible for trampling. It must be considered that this vehicle is a major means of transport used by the population. This

finding is consistent with studies that indicate the motorcycle, bicycle and cars as the key provocateurs of traffic accidents.^{20,25}

The increased use of this type of transport can be explained by the low value compared to the value of an automobile, and can be purchased by people with less purchasing power, thus there is a significant increase in this type of vehicle fleet in traffic, which associated with other factors such as recklessness, age and ability of drivers makes such vehicles, commonly, the most involved in traffic accidents.

With regard to the anatomical location of the injury, it was found that the lower limbs and the head were the sites of the body most affected, followed by trauma in multiple regions, stands out even the traumas of the upper limbs, abdomen, back and spine. These data agree with research that indicates that fractures are mainly located in the lower limbs (29,2%) with emphasis on femur fractures (19,3%), followed by intracranial injury (14,4%), fractures upper limbs (12,1%) and multiple trauma (11,9%).²⁶

Research performed in a Hospital Emergency Rio Grande do Norte showed that body region most affected in traffic accidents was the head/neck, followed by the outer surface, limbs and waist pelvic.²⁷ Another study found that the most frequent types of injuries are fractures of the femoral neck, trochanteric fractures and TBI, which represented the percentage of 28,1%, 14,9 % and 14,4%, respectively.⁷ It is known that the vulnerabilities inherent in this age group contributes to the high mortality in traffic accidents, given that the trampling of elderly pedestrians is characterized as one of the most violent accidents causing serious injuries regardless of collision speed.¹⁴

The elderly are more prone to serious injury in accidents equivalent to the suffered by the young, are life-threatening injuries similar to gravity, revealing that orthopedic injuries and extremities are the most frequent in elderly traumatized, corroborating our results.³ was observed that most had run over pedestrians as the endpoint discharge. Data found in other studies reveal that during emergency care, more than half of cases discharged.^{25,28}

Elderly patients have higher mortality rates than younger after trauma; however it was noted that the vast majority of cases was discharged while 11% progressed to death, since the majority of cases treated for lower limb fracture, which can be considered a good prognosis trauma.¹⁵

CONCLUSION

The results showed the prevalence of males, aged between 60 and 69 years old, married, with unknown education, who suffered being hit by motorcycle, occurring over the weekend, were rescued by SAMU, showed lesions predominantly in the lower limbs, head and multiple regions, as end discharge.

Considering these findings, in order to minimize this type of event, we believe education and awareness in traffic through educational and punitive measures, which should be focused in the main on motorcyclists be required, since they are the main subjects involved in traffic elderly pedestrians.

Thus, we expect that the results will serve as a tool for the development of specific preventive measures in order to improve the quality of life of the general population, especially the elderly population considering their greater susceptibility to this type of injury.

REFERENCES

1. Carvalho J M, Garcia RA. O envelhecimento da população brasileira: um enfoque demográfico. Cad saúde pública [Internet]. 2003[cited 2013 Feb 11];19(3):725-33. Available from: http://www.scielo.br/scielo.php?script=sci_arttext&pid=S0102-311X2003000300005&lng=en.<http://dx.doi.org/10.1590/S0102-311X2003000300005>.
2. Mathias TA, Jorge MH, Andrade OG. Morbimortalidade por causas externas na população idosa residente em município da região sul do Brasil. Rev latino-am enfermagem [Internet]. 2006 [cited 2013 Mar 12];14(1):17-24. Available from: http://www.scielo.br/scielo.php?pid=S0104-11692006000100003&script=sci_arttext
3. Parreira JG, Soldá SC, Perlingeiro JAG, PadovesCC, Karakhanian WZ, Assef JC. Análise comparativa das características do trauma entre pacientes idosos e não idosos. Rev assoc med bras [Internet]. 2010 [cited 2013 Mar 11];56(5):541-6. Available from: <http://www.scielo.br/pdf/ramb/v56n5/v56n5a14.pdf>.
4. Bacchieri G, Barros AJ D. Acidentes de trânsito no Brasil de 1998 a 2010: muitas mudanças e poucos resultados. Rev saúde pública [Internet]. 2011 Sept [cited 2013 Oct 05];45(5):949-63. Available from: http://www.scielo.br/scielo.php?script=sci_arttext&pid=S0034-89102011000500017&lng=en.

<http://dx.doi.org/10.1590/S0034-89102011005000069>.

5. Bastos YGL, Andrade SM, Soares DA. Características dos acidentes de trânsito e das vítimas atendidas em serviço pré-hospitalar em cidade do Sul do Brasil, 1997/2000. *Cad saúde pública* [Internet]. 2005 [cited 2013 Feb 15];21(3):815-22. Available from: <http://www.scielo.br/pdf/csp/v21n3/15.pdf>
6. Silva FVC. A Psicologia do trânsito e os 50 anos de profissão no Brasil. *Psicol cienc prof* [Internet]. 2012 [cited 2013 May14];32(1):176-93. Available from: http://www.scielo.br/scielo.php?script=sci_arttext&pid=S1414-98932012000500013&lng=en&nrm=iso>. <http://dx.doi.org/10.1590/S1414-98932012000500013>.
7. Melo SCB, Leal SMC, Vargas MAO. Internação de idosos por causas externas em um hospital público de trauma. *Enffoco* [Internet]. 2011 [cited 2013 Mar 20]; 2(4):226-30. Available from: <http://revista.portalcofen.gov.br/index.php/enfermagem/article/view/189>
8. Batista SEA, Baccani JG, Silva RAP, Gualda KPF, Junior RJAV. Análise comparativa entre os mecanismos de trauma, as lesões e o perfil de gravidade das vítimas, em Catanduva - SP. *Rev col bras cir* [Internet]. 2006 [cited 2014 Apr 5];33(1). Available from: http://www.scielo.br/scielo.php?script=sci_arttext&pid=S0100-69912006000100003&lng=pt&nrm=iso&userID=-2
9. Biazin DT, Rodrigues AP. Perfil dos idosos que sofreram trauma em Londrina -PR. *Rev esc enferm USP* [Internet]. 2009 [cited 2013 Apr 3];43(3):602-8. Available from: www.scielo.br/pdf/reeusp/v43n3/a15v43n3.pdf
10. Silveira R, Rodrigues CJ. Idosos que foram vítimas de acidentes de trânsito no município de Ribeirão Preto-SP, em 1998. *Rev latino-am enfermagem* [Internet]. 2002 [cited 2013 Feb 17];10(6). Available from: http://www.scielo.br/scielo.php?script=sci_arttext&pid=S0104-11692002000600003
11. Marchese V S, Scatena J HG, Ignotti E. Caracterização das vítimas de acidentes e violências atendidas em serviço de emergência: Município de Alta Floresta, MT (Brasil). *Rev bras epidemiol* [Internet]. 2008 [cited 2013 Apr 11];11(4):648-59. Available from: www.scielo.br/pdf/rbepid/v11n4/11.pdf
12. Barros AJD, Amaral RL, Oliveira MSB, Lima SC, Gonçalves EV. Acidentes de trânsito com vítimas: sub-registro, caracterização e letalidade. *Cad saúde pública* [Internet]. 2003 [cited 2013 June 9]; 19(4): 979-86. Available

- from: www.scielo.br/pdf/csp/v19n4/16848.pdf
13. Santos MR, Soler ZASG. Vítimas de trânsito em São José do Rio Preto, São Paulo. *Epidemiol serv saúde* [Internet]. 2007 [cited 2013 May 19];16(2):[about 5 screens]. Available from: http://scielo.iec.pa.gov.br/scielo.php?pid=S1679-49742007000200010&script=sci_arttext
14. Camargo FC, Iawomoto HH. Vítimas fatais e anos de vida perdidos por acidentes de trânsito em Minas Gerais, Brasil. *Esc Anna Nery* [Internet]. 2012 [cited 2013 June 3];16(1):141-46. Available from: http://www.scielo.br/scielo.php?pid=S1414-81452012000100019&script=sci_arttext
15. Campos JFS, Poletti NAA, Rodrigues CDS, Garcia TPR, Angelini JF, Dollinger APAV, *et al.* Trauma em idosos atendidos no pronto atendimento da emergência do Hospital de Base. *Arq ciênc saúde* [Internet]. 2007 [cited 2013 May 20];14(4):193-7. Available from: http://www.cienciasdasaude.famerp.br/racs_ol/vol-14-4/ID214.pdf
16. Duailibi S, Pinsky I, Laranjeira R. Prevalência do beber e dirigir em Diadema, estado de São Paulo. *Rev saúde pública* [Internet]. 2007 [cited 2013 Jan 30];41(6):1058-61. Available from: www.scielo.br/pdf/rsp/nahead/6185.pdf
17. Laurenti R, Guerra MAT, Baseotto R A, Klincervicius MT. Alguns aspectos epidemiológicos da mortalidade por acidentes de trânsito de veículo a motor na Cidade de São Paulo, Brasil. *Rev saúde pública* [Internet]. 1972 [cited 2013 Sept 5];6(4):329-41. Available from: http://www.scielo.br/scielo.php?script=sci_arttext&pid=S0034-89101972000400003&lng=en. <http://dx.doi.org/10.1590/S0034-89101972000400003>.
18. Souza VR, Cavenaghi S, Alves JED. Análise espacial dos acidentes de trânsito com vítimas fatais: comparação entre o local de residência e de ocorrência do acidente no Rio de Janeiro. *Rev bras est pop* [Internet]. 2008 [cited 2013 Jan 31];25(2):353-64. Available from: http://www.scielo.br/scielo.php?script=sci_arttext&pid=S0102-30982008000200010&lng=en&tlng=pt. <http://dx.doi.org/10.1590/S0102-30982008000200010>
19. MascarenhasMDM, Gomes K RO. Confiabilidade dos dados do Sistema de Informações sobre Nascidos Vivos em Teresina, Estado do Piauí, Brasil - 2002. *Ciênc e saúde col* [Internet]. 2011 [cited 2013 May 3];(16 Supl. 1):1233-39. Available from:

http://www.scielo.br/scielo.php?pid=S1413-81232011000700055&script=sci_arttext

20. Abreu AMM, Jomar RT, Thomaz R GF, Guimarães RM, Lima JMB, Figueiró RFS. Impacto da *Lei Seca* na Mortalidade por acidentes de trânsito. Rev enferm UERJ [Internet]. 2012 [cited 2013 June 13];20(1):21-6. Available from: <http://www.e-publicacoes.uerj.br/index.php/enfermagemuerj/article/view/3970>

21. Zabeu JLA, Zovico JRR, Júnior WNP, Neto PFT. Perfil de vítima de acidente motociclístico na emergência de um hospital universitário. Rev bras ortop [Internet]. 2013 [cited 2013 Apr 21];48(3):242-5. Available from: http://www.scielo.br/scielo.php?pid=S010236162013000300242&script=sci_arttext&tlng=pt

22. Oliveira ZC, Mota ELA, Costa MCV. Evolução dos acidentes de trânsito em um grande centro urbano, 1991-2000. Cad saúde pública [Internet]. 2008 [cited 2013 July 24];24(2):364. Available from: www.scielo.br/pdf/csp/v24n2/14.pdf

23. Pereira WAP, Lima MADS. Atendimento pré-hospitalar: caracterização das ocorrências de acidente de trânsito. Acta paul enferm [Internet]. 2006 [cited 2013 June 26];19(3):279-83. Available from: http://www.scielo.br/scielo.php?pid=S0103-21002006000300004&script=sci_arttext

24. Ladeira RM, Barreto SM. Fatores associados ao uso de Serviço de Atenção Pré-Hospitalar por vítimas de acidentes de trânsito. Cad saúde pública [Internet]. 2008 [cited 2013 Aug 2];24(2). Available from: www.scielo.br/pdf/csp/v24n2/06.pdf

25. Mascarenhas MDM, Silva MMA, Malta DC, Moura L, Gawryszewski VP, Costa VC *et al.* Atendimentos de emergência por acidentes na Rede de Vigilância de Violências e Acidentes - Brasil, 2006. Ciên e saúde col [Internet]. 2009 [cited 2013 Aug 22];14(5):1657-68. Available from: http://www.scielo.br/scielo.php?pid=S1413-81232009000500007&script=sci_arttext

26. Gawryszewski VP, Jorge MHPM, Koizumi MS. Mortes e internações por causas externas entre os idosos no Brasil : O Desafio de integrar a saúde coletiva e atenção individual. Rev assoc med bras [Internet]. 2004 [cited 2013 Aug 16];50(1):97-103. Available from: http://www.scielo.br/scielo.php?pid=S0104-42302004000100044&script=sci_arttext

27. Farias GM, Barros WCTS, Rocha KMM, Freitas MCS, Costa IKF, Filho LAM. Caracterização dos condutores de motocicleta vítimas de acidentes de trânsito atendidos em Hospital de Urgência. J Nurs UFPE on line [Internet]. 2009 [cited 2013 Aug 17];3(4):898-

907.

Available from: <http://www.revista.ufpe.br/revistaenfermagem/index.php/revista/article/viewArticle/99>

28. Luz TCB, Malta DC, Sá NNB, Silva MMA, Costa MFL. Violências e acidentes entre adultos mais velhos em comparação aos mais jovens: evidências do Sistema de Vigilância de Violências e Acidentes (VIVA), Brasil. Cad saúde pública [Internet]. 2011 [cited 2013 Aug 4];27(11):2135-42. Available from: www.scielo.br/pdf/csp/v27n11/07.pdf

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