

DIEGO ENRICO DUARTE DE CASTRO

**EMERGENCE IN MAXILLOFACIAL
SURGERY SERVICE:
PROFILE CHANGES 1998 and 2012**

FACULDADE DE ODONTOLOGIA
UNIVERSIDADE FEDERAL DE MINAS GERAIS
BELO HORIZONTE

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EMERGENCE IN MAXILLOFACIAL SURGERY SERVICE: PROFILE CHANGES 1998 and 2012

Monografia apresentada ao Colegiado do Programa de Pós-Graduação da Faculdade de Odontologia da Universidade Federal de Minas Gerais, como requisito parcial para obtenção do Título de Especialista em Cirurgia e Traumatologia Buco Maxilo Facial .

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Co-Orientador : Prof. Msc. Vladimir Reimar Augusto de Souza Noronha.

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Ata da Comissão Examinadora para julgamento de Monografia do aluno **Diego Enrico Duarte de Castro**, do **Curso de Especialização em Cirurgia e Traumatologia Buco-Maxilo-Facial**, realizado no período de 01/08/2012 a 07/12/2014.

Ao 05º. (quinto) dia do mês de dezembro de 2014, às 16:30 horas, na sala da Pós-Graduação (3403) da Faculdade de Odontologia, reuniu-se a Comissão Examinadora, composta pelos professores Augusto César Sette Dias (Orientador), Leandro Napier Souza, André Fernandes Maia. Em sessão pública foram iniciados os trabalhos relativos à apresentação da monografia intitulada **“Emergence In Maxillofacial Surgery Service: Differences Among 1998-2012”**. Terminadas as arguições, passou-se à apuração final. A nota obtida pelo aluno foi **90 (noventa)** pontos, e a Comissão Examinadora decidiu por bem, considerá-lo **aprovado**. Para constar, eu, *Prof. Augusto César Sette Dias*, Presidente da Comissão lavrei a presente ata que assino, juntamente com os demais membros da Comissão Examinadora. Belo Horizonte, 05 de dezembro de 2014.

Prof. Augusto César Sette Dias (Orientador)

Prof. Leandro Napier Souza

Prof. André Fernandes Maia

DEDICATÓRIA

Aos meus pais, Cléber e Lana, meus primeiros mestres. Sempre ao meu lado, apoiando e incentivando todas as minhas decisões. Obrigado mais uma vez pela compreensão, ajuda e amor incondicional tão importantes na minha vida!

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“DOUBT IS THE BEGINNING OF WISDOM”

“NO PAIN, NO GAIN”

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**EMERGENCE IN MAXILLOFACIAL SURGERY
SERVICE: PROFILE CHANGES 1998 and 2012**

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EMERGENCE IN MAXILLOFACIAL SURGERY SERVICE: PROFILE CHANGES 1998 and 2012

RESUMO

Esta pesquisa tem como objetivo identificar os tipos de assistência e os perfis do assistido, entre 1998 e 2012 no de no Serviço de Cirurgia Buco-Maxilo-Facial do Hospital Municipal Odilon Behrens. Tratou-se de um estudo retrospectivo e descritivo, realizado no Hospital Municipal Odilon Behrens em Belo Horizonte - Minas Gerais, com base em relatórios preenchidos pela equipe de Cirurgia Buco Maxilo Facial, com um total de 2920 dados de pacientes registrados. A avaliação levou em conta o tratamento realizado em 1998 em relação a 2012. Os dados analisados incluíram basicamente diagnóstico etiologia e plano de tratamento. Após a avaliação, os resultados obtidos que tiveram um aumento dos casos em comparação de 1998 com 2012, devido a etiologias, foram: queda da própria altura, dor orofacial, acidentes de moto, infecções odontogênicas, acidente com objetos, edema, epistaxe e acidentes domésticos. Em contrapartida, uma redução significativa de casos de 1998 comparando com 2012 nas seguintes etiologias foram: acidente ciclístico, acidente automobilístico, trauma em face, atropelamento e acidente com animais. Como resultado, os dados indicam que a proporção de 2: 1 Masculino / Feminino, em 1998, diminuiu de 1,55: 1 em 2012. Embora houvesse etiologias com ligeiras variações de diagnóstico, em geral, a casuística permaneceu a mesma quando se compara 1998-2012.

Palavras-chave: fraturas maxilo-faciais, epidemiologia, traumatologia.

ABSTRACT

This research is aimed to identify the kinds of assistance and the profiles of the assisted between 1998 and 2012 at Odilon Behrens Hospital in the Maxillo-Facial Surgery service. A retrospective and descriptive study was conducted at Odilon Behrens Municipal Hospital in Belo Horizonte - Minas Gerais, based on reports at appointments completed by the team of Maxillofacial Surgery, with a total of 2920 survey data of patients registered for control. The assessment took into account the treatment performed in 1998 compared to 2012. The data analyzed included basically diagnosis and hands on in our service. After evaluating, the results obtained have had an increase in cases on 1998 and 2012 due to etiologies such as: fall from height, orofacial pain, motorcycle accidents, odontogenic infections, accident with objects, edema, epistaxis, and household accidents., in contrast, a significant reduction of cases in 1998 and 2012 in the following etiologies were observed Cycling accident, Automobilistic accident, Trauma in Face, Running Over and Animal Accident. Our data indicate that ratio of 2:1 males/female patient in 1998, decreased from 1.55: 1 in 2012. Although there were slight variation etiologies and diagnostic, in general our casuistic remains the same when comparing 1998-2012.

KEYWORDS: maxillofacial fractures, epidemiology, traumatology.

SUMMARY

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INTRODUCTION

Due to the increase in deaths, injuries and motor-physical disability occurring due to external causes in Latin America, especially in large urban centers, hospital dental care is increasingly more concerned about violence cases, but the Maxillofacial service also consists in cases of emergency rooms which comprise indexes of epidemiological studies facing calls from odontogenic infection, falls in general, urban violence and violence in traffic, being current studies showing the importance of a professional in decision taking for wide care in hospitals and ambulatorial. ^[1]

Victims of facial injuries can sustain scars or disfigurements, with their resultant emotional and psychological impact.^[2] Psychological impairment such as posttraumatic stress syndrome and depression are common after sustaining facial injuries.^[3] The Maxillofacial injury is also associated with high socioeconomic import due to the increasing cost of hospital resource as well as time lost to work.^[4]

The area of operation of the maxillofacial surgeon involves soft and hard tissues forming the face, extending from frontal bone superiorly to the mandible inferiorly. The face being the most exposed part of the body is particularly prone to trauma. Trauma to the facial region causes injuries to skeletal components, dentition as well as soft tissues of the face.^[5]

Maxillofacial fractures are more prevalent in large cities due to heavy traffic and high rate of violence. The causes, types and fractures sites are different. Different studies have shown the relationship between maxillofacial fractures, sex, age and level of urban development. [1-5].

Since the man evolved and developed more machines to facilitate the day-to-day, the incidence and severity of lesions on the face by trauma also increased, ^[6] due to the greater number of drivers the increase in the practice of physical contact sport, and a more active social life, inferring a greater consumption of alcohol and other drugs. ^[7]

In turn, some affirm that, especially over the last three decades, there has been a growing increase of traumas in women usually around 40 years

old due to their increasing participation in activities that were previously male dominant. [1,8]

The aim of this study was to compare the type of care occurred in patients identified in the database of the service in Maxillofacial Surgery offered by Odilon Behrens Municipal Hospital in Belo Horizonte - Minas Gerais. The survey data was a confrontation between the years 1998 and 2012, with statistics data.

MATERIAL AND METHODS

A retrospective and descriptive study was conducted at Odilon Behrens Municipal Hospital in Belo Horizonte - Minas Gerais, based on reports of visits completed by the team of Surgery and Maxillofacial, with a total of 2920 survey data on patients registered for control of team. The assessment considered the assistance performed in 1998 compared to 2012. The data analyzed included: age and gender of the patient, the etiology of care, diagnostic service, the occurrence of facial fracture, the affected region and action or conduct performed.

Analyzing data, the medical records were divided according to the patients' age group, up to 7 years, between 7 and 14, between 14 and 21 years, between 21 and 34 years and more than 34 years. Patients were divided by male and female gender.

Regarding precedence, the referential point was the city of Belo Horizonte, and the classification "other locations" was assigned to patients from other cities due to the influence Belo Horizonte has regionally, especially concerning health centers. HMOB is a public referral hospital that attends to about 11,000 patients monthly. The Hospital provides emergency dental care and maxillofacial surgery with monthly averages of 1,300 and 500 patients, respectively.

The etiological agents were divided into falls, physical assault, cycling accident, automobile accident, trampling, sports accidents, motorcycle accidents, accidents with animals, cut accidents by blunt object, odontogenic

infection and angina de Ludwig, orofacial pain , gunshot, work accident, seizure, trauma to the face, edema, domestic accident, epistaxis, bleeding, myiasis, facial paralysis.

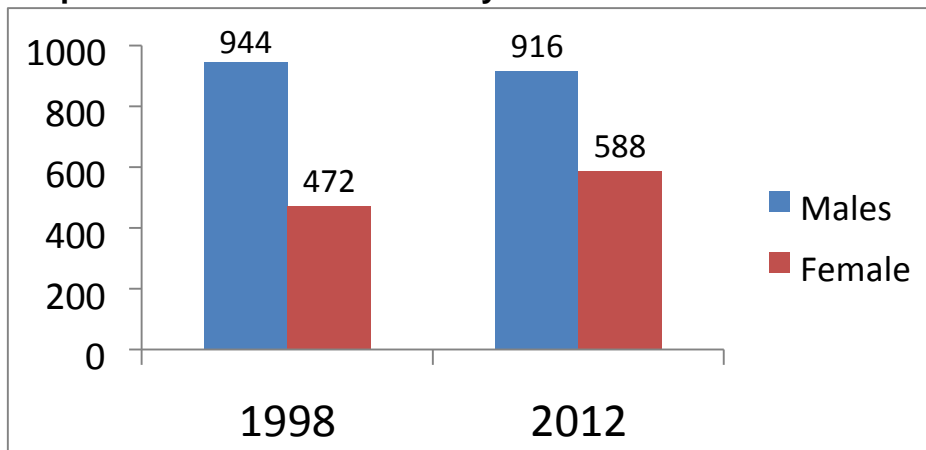
The diagnoses were divided into seventeen groups: dental trauma, superficial injury of face, intraoral cut contusion lesion odontogenic infection, fracture of the nose bones, mandible fracture, temporo mandibular dysfunction, zygomaticcomplex fractures, bleeding, referred to stomatology , condylar fracture, dislocation of condyle, orbital floor fracture, extra oral cut contusion lesion oral superficial injury, alveolodental fracture, jaw fracture.

And regarding the conduct, it was subdivided into prescribing, suturing, splinting, and follow up, maxillo mandibular fixation, request for pre-operative examinations, hospitalization, drainage, surgery, return to review, several interventions such as debridement, reduction and repositioning, nasal packing.

Values in percentage referring to the numbers observed in the data collection were considered in the evaluation.

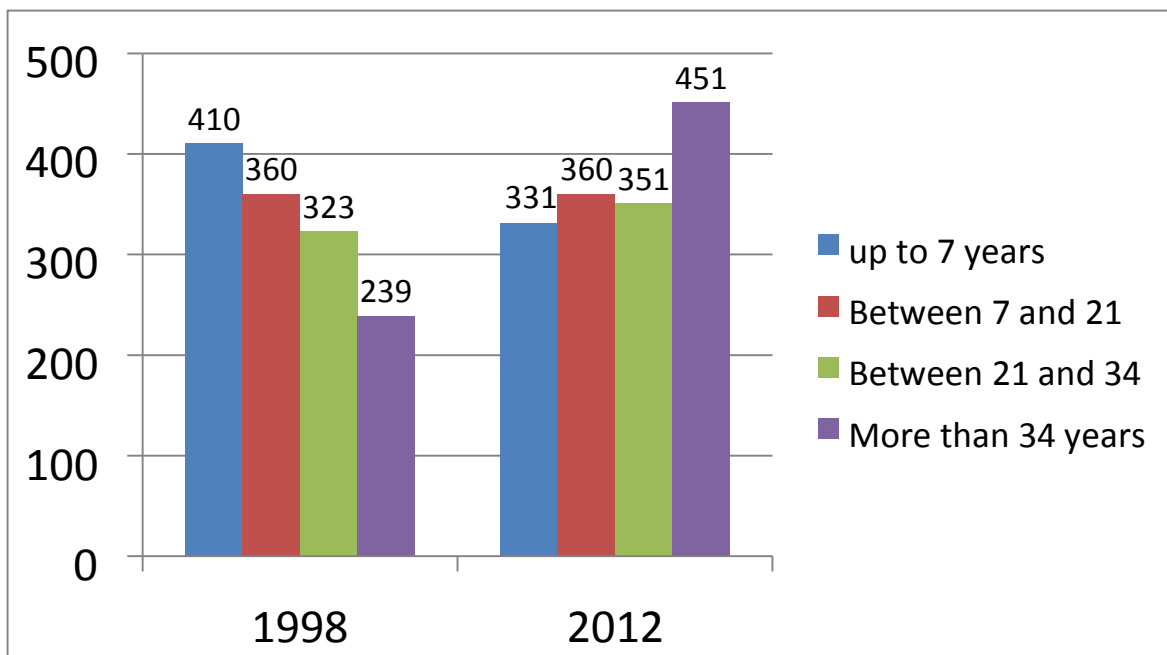
Results Based on these reports, a profile of the patients seen in these two years was drawn up. When we compared the profile of care between these period was noted a ratio of 2 males to 1 female patient in 1998, this ratio was decreased from 1.55: 1 in 2012. However, the sex ratio feminine even remaining lower compared to males of the year, increased from 33.3% in 1998 to 39.1% in 2012. The distribution of patients in these two years in relation to gender can be seen in (Graph 1).

Graph1: Gender distribution by Year



In regard to) age, it was observed sample data from individuals in 1998 and 2012, and is important to note that the age range of individuals up to 7 years decreased from 30.8% in 1998 to 22.2% in 2012, and the age range of individuals over 34 years increased from 17.9% in 1998 to 30.2% in 2012 (Graph 2).

Graph2: Age distribution of patients in each year.



The average age of the subjects increased from 20 years in 1998 to 26.5 years in 2012, as well as the median that in 1998 was of 18 years-old and in 2012 increased to 23 years (SD 16.0, 19.7 respectively).

Table 1 : Etiologies between the years 1998 and 2012.

ETIOLOGY	Year				Total	*
	1998		2012			
	N	%	N	%		
Fall of ownheight	358	12.93	451	16.28	809	*
Physical aggression	244	8.81	210	7.58	454	*
Fall from height	162	5.85	149	5.38	311	*
Cycling accident	133	4.98	62	2.24	195	*
Automobilistic accident	81	2.92	58	2.09	139	*
Trauma in face	112	4.04	19	0.69	131	*
Sport accident	56	2.02	59	2.13	115	*
Running over	60	2.17	21	0.76	81	*
Face and mouthpain	20	0.72	80	2.89	100	*
Motorcycle accident	21	0.76	52	1.88	73	*
Odontogenic infection	42	1.52	75	2.71	117	*
Cut blunt object trauma	22	0.79	52	1.88	74	*
Edema	17	0.61	31	1.12	48	*
Projectile gun injure	11	0.40	11	0.40	22	*
Work accident	9	0.32	12	0.43	21	*
Animal accident	14	0.51	5	0.18	19	*

Home accident	7	0.25	13	0.47	20	*
Epistaxis	4	0.14	8	0.29	12	*
Convulsive crisis	2	0.07	5	0,18	7	
Bleeding	9	0.32	5	0.18	14	*
Myiasis	2	0.07	5	0.18	7	
Facial paralysis	0		1	0.04	1	
TOTAL	1386	50.04	1384	49.96	2770	

*p ≤ 0,05

Table 2: Diagnostics between the years 1998 and 2012.

DIAGNOSTIC	ANO				Total	
	1998		2012			
	N	%	N	%		
Dental trauma	515	55.7%	410	44.3%	925	*
Soft Tissue Trauma	207	35.8%	371	64.2%	578	*
Intra Oral Cut Contusion Injury)	282	63.5%	162	36.5%	444	*
Nose Fracture	75	40.8%	109	59.2%	184	*
Fractured Jaw	98	54.7%	81	45.3%	179	
Odontogenic infection	74	37.6%	123	62.4%	197	*
Fracture of zygomatic complex	53	43.1%	70	56.9%	123	
Temporomandibular joint dysfunction	29	28.2%	74	71.8%	103	*
Bleeding	23	25.3%	68	74.7%	91	*
Tooth alveoli fracture	53	89.8%	6	10.2%	59	*
Condyle fracture	27	60.0%	18	40.0%	45	*
Dislocation of condyle	27	65.9%	14	34.1%	41	
Referred to stomatology	4	12.5%	28	87.5%	32	*
maxilla Fracture	17	73.9%	6	26.1%	23	*
Orbital Floor Fracture	5	31.3%	11	68.8%	16	

Extra Oral Cut Contusion Injury	0	0.0%	10	100.0%	10	*
Deep oral trauma	0	0.0%	7	100.0%	7	*

***p ≤ 0,05 Test used to assess the statistical data collected varying levels was the chi square**

Table 3: Values Contingency Action by year.

Action	Year				Total	
	1998		2012			
	N	%	N	%		
Prescription	555	33.1%	666	35.2%	1221	
Suture	290	17.3%	204	10.7%	494	*
Splinting	170	10.1%	210	11.1%	380	
Follow Up	172	10.2%	305	16.3%	477	*
Maxillo Mandibular Fixation	113	6.74%	51	5.92%	164	*
Request for exams + pre-operative exams	98	5.84%	112	5.92%	210	
Extraction	85	5.07%	9	0.47%	94	*
Hospitalization	48	2.86%	109	5.76%	157	*
Drainage	51	3.04%	16	0.84%	67	*

Surgery	42	2.50%	64	3.38%	106	
Return to Review	13	0.77%	90	4.76%	103	*
Intervention of various type debridement, reduction, repositioning	29	1.73%	44	2.32%	73	
Nasal Packing	10	0.59%	10	0.52%	20	
TOTAL	1676	100,0%	1890	100,0%	3566	

***p ≤ 0,05**

Among the cases with the highest number of occurrences in 1998 we have the prescription (33.1%), suture (17.3%), splinting (10.1%) and follow up (10.2%) corresponding to 70.7% of year data. But for the year 2012 cases with the largest number of occurrences were again the prescription (35.2%), followed by proservation + guidelines (16.3%), splinting (11.1%) and suture (10.7%), corresponding to 73.3% of the year data. It is important that prescribing, splinting observation showed a slight increase from 1998 to 2012, since the action of preservation associated guidelines has increased considerably from 1998 to 2012.

After evaluating the results obtained varied in relation to an increase only in cases between 1998 and 2012 compared to etiologies such as: fall from height, orofacial pain, motorcycle accidents, odontogenic infections, accident with objects, edema, epistaxis, and household accidents. Cycling accidents, car accidents, injuries in the face, and trampling accident with animals, since in contrast, a significant reduction of cases in 1998 and 2012 in the following etiologies were observed.

It was observed in this study a significantly higher incidence in males for the diagnosis of type: mandible, fracture of zygomatic complex fracture, tooth socket fracture, fracture of the condyle. Although more occurrences observed in females for diagnosis was mandibular dysfunction and dislocation of temporomandibular condyle.

DISCUSSION

With the analysis of the record books evaluated under the care of Maxillofacial Surgery Odilon Behrens Municipal Hospital service, comparing the results obtained between the years 1998 and 2012, we observed that the majority of treatment patients were males, with ratios of 2:1 in 1998 and 1:1.55 in 2012, with males twice as attendance, following a statistical pattern mentioned by other authors^[9,10]. A greater amount of care males can be explained by the fact that men are more involved in outdoor activities and are also exposed to violent interactions compared with women who are less exposed due to social and religious limitations, conductors vehicles males also far outweigh women.^[11,12]

The indices of this survey compared Parker *et al.* (1989)^[13] shows that the reasons for the higher frequency of service in the field of Maxillofacial Surgery in developing countries, is the no attention to road safety, inadequate road conditions, lack of expanding motorway network, disrespect of speed limit, older vehicles without safety itens, without a seat belt, highway code violations and use of alcohol or other intoxicating agents. Involving in this number motorcycle accidents, car accidents, pedestrian accidents.^[14]

Comparing physical aggression were observed similarities in our results when comparison to other works^[7,27]. The important reason is the involvement of young people in conflict, these young people from all social classes, also mentioned by another author makes it clear that the devaluation of life and the trivialization of bad civilization^[15]. One part of physical aggression found in rates of attendance is related to domestic assault that has few options available to those who are subjected to a state of penury to deal with economic problems, finding it difficult to cope with difficult emotional situations, leading to an escalation of violent actions. Some studies suggest the importance of factors such as unemployment

heads of family and marital instability as causes of nonlethal domestic violence.^[3,13]

Distinct approaches have a number of elements of continuity, since there is a structural reality of poverty, relative or absolute, it favors the possibility of flourishing subculture of violence, which we obtained results that can show full connection with the situation of Brazil, where we find the two highest levels of care in surgery Maxillofacial that are simple falls and physical aggression with the high rate of violence and crime.^[16] The elements of this subculture would generate violence indirectly through poverty.^[13] In any case, we just have to considerate a strong conviction in two other studies that there is a close, though not causal interaction between violent crime and socioeconomic conditions.^[17,18]

The rates observed in the survey regarding to the decrease in the number of cycling accidents comparing the year 1998 to 2012, may be related to the change directed to wear helmets and protective gear for cyclists, this habit that becomes more common every day . For this activity is important some equipment, the bell, the mirror on the left side and nighttime signals front, rear, side and pedals. However, current legislation does not describe how the obligation, to use accessories like the rider's helmet, which is not mandatory but recommended use^[19,20].In Brazil, the cyclists are becoming more conscious about the use of an accessory that allows protect the head during use of the bicycle as transport or recreation. With this, understand that this should be the correct way to equip oneself for cycling, the same cycling helmet not being so effective in protecting Maxillo Mandibular, these groups of cyclists end up reaching another level of protection in relation to the common unsuspecting user, .^[21,22]

Since the study of the Ministry of Health had shown a reduction of up to 10% in the number of hospitalizations for injury by firearms after deployment of the National Campaign on Disarmament,^[23] we expected to find a reduction in the number of visits for injury by firearm, in the region of Surgery and Maxillofacial. However, it was noted that there was not such trend, since the average attendance has remained the same. According to

data released by the Ministry of Health in some states injuries by firearms decreased and in other states even after the campaign of disarmament injuries increased, not proving total efficiency of this law.^[24]

Connection the work of Motamed et al.(2012)^[25] a survey was conducted within military training centers in three different provinces and gathered data from two months of intense combat training to guerrillas. Data and accompanying report found the same rates raised by our research today in our population. The highest prevalence rates were: dental trauma, contusion lesion cut in the face, the nasal bone fracture in 60% of visits.

In 2008 Kotecha^[26] up attendances of 1062 patients in a hospital specialized in pediatric emergency attendances in England having results in the proportion ratio of 2 boys to 1 girl, same result found in our survey in 1998. Finding that the main causes of attendance 70 % by fall and 17% for any type of personal violence. From the total, 70% of visits were for injuries to soft tissue, and 14% had some type of facial fracture. However these data vary of our results. Maybe cultural differences may explain it.

Allareddy et al. (2011)^[27] showed clearly in his survey during the year 2007 on maxillofacial services performed in the United States of America, with a total number of 407 167 visits having as causes facial fracture. It was calculated an average age of 37.9 years, high than our results. They found and 68% of cases were males, of which were similar to those found in our service. For those authors financial calculations have been performed in relation to appointments with a mean value of \$ 3.192 per patient, and the average hospital charges for 2007 with facial trauma around \$ 1 billion. Calls were made of 37% physical abuse, 24% of falls and motor vehicle accidents 12.1%, this study has highlighted the public health impact caused by facial fractures.

Lee (2008)^[28] conducted a study in New Zealand by performing a comparison between the treatments of maxillofacial fractures and its links to alcohol consumption. It was found that facial fractures are a major problem among young adult males who use alcohol in excess. Consumption of alcohol and other drugs is recognised as an independent risk factor for

violent behaviour. The most prevalent is young male, with the main causes physical injury, automobile accidents, and high rate of robberies in late evening hours^[29]. Due a retrospective and descriptive feature in our study was not possible to relate the consumption of alcohol and drugs on the population. Probably the consumption of alcoholic beverages is highly prevalent in our visitors. However, new study is necessary in order to confirm this interrelationship.

Although there were slight variation etiologies and diagnostic, in general our casuistic remains the same when comparing 1998-2012. This may be different country to country. We agree with Leles et. al. (2010)^[30] about a need of effective educational and communication strategies and the implementation of policies aimed at preventing and reducing maxillofacial injury and its effects.

REFERENCES

1. MacKenzie EJ. Epidemiology of injuries: current trends and future challenges. *Epidemiol Rev.* 2000;22(1):112-9.
2. Joy D, Probert R, Bisson JI, Shepherd JP. Posttraumatic stress reactions after injury. *J Trauma* 2000;48:490-4.
3. Shepherd J. Victims of personal violence: the relevance of Symond's model of psychological response and loss theory. *Br J Soc Work* 1990;20:309-32.
4. Kostakis G, Stathopoulos P, Dais P, Gkinis G, Igoumenakis D, Meztis M, et al. An epidemiologic analysis of 1,142 maxillofacial fractures and concomitant injuries. *Oral Surg Oral Med Oral Pathol Oral Radiol.* 2012 Nov;114(5 Suppl):S69-73.
5. Kapoor P, Kalra N. A retrospective analysis of maxillofacial injuries in patients reporting to a tertiary care hospital in East Delhi. *Int J Crit Illn Inj Sci.* 2012 Jan;2(1):6-10.
6. Kamulegeya A, Lakor F, Kabenge K. Oral maxillofacial fractures seen at a Ugandan tertiary hospital: a six-month prospective study. *Clinics (São Paulo).* 2009;64(9):843-8.
7. Conto F, Santos RS, Rhoden R, Nicolini IC. Levantamento epidemiológico das fraturas de face no hospital São Vicente de Paulo, Passo Fundo, RS. *RFO - UPF.* 2003;8(2):81-2.
8. Kostakis G, Stathopoulos P, Dais P, Gkinis G, Igoumenakis D, Meztis M, et al. An epidemiologic analysis of 1,142 maxillofacial fractures and concomitant injuries. *Oral Surg Oral Med Oral Pathol Oral Radiol.* 2012 Nov;114(5 Suppl):S69-73.
9. Motamed MH. An assessment of maxillofacial fractures: A 5-year study of 337 patients. *Am Assoc Oral Maxillofac Surg.* 2003 Jan;61(1):61-4.
10. Sobreira T, Vieira JAO, Lobo AR, Wanderley JNB, Costa LJ. Prevalência de traumatismos bucomaxilofaciais em João Pessoa - Brasil. *Rev Bras Cien Saúde.* 2002;6(6):25-32.

11. Kadkhodaie MH. Three-year review of facial fractures at a teaching hospital in northern Iran. *Br J Oral Maxillofac Surg.* 2006 June; 44(3): 229-31.
12. Al Mahmeed BE, Morris RE, Ibrahim M, Belal MS, Al Ramzy A, Al Rassed B, et al. Maxillofacial trauma in Kuwait: a retrospective study (1985-1989). *Saudi Dental J.* 1994;6:13-6.
13. Parker RN, Smith MD. Deterrence, poverty, and type of homicide. *Am J Sociol.* 1989;85:614-24.
14. Ansari MH. Maxillofacial fractures in Hamedan province, Iran: a retrospective study (1987-2001). *J Craniomaxillofac Surg.* 2004 Feb; 32(1): 28-34.
15. Bastos R, Ângelo D, Colnago V. *Adolescência, violência e a lei.* Rio de Janeiro: Companhia de Freud; 2007. 315 p.
16. Wolfgang ME, Ferracuti F. *The subculture of violence.* Londres: Tavistock, 1967.
17. Greenwood P W, Model KE, Rydell P, Chiesa J. *Diverting children from a life of crime: measuring costs and benefits.* Santa Mônica (CA): Rand Corporation; 1996.
18. Sherman LW. Thinking about crime prevention. In: Sherman LW, Gottfredson D, MacKenzie D, Eck J, Reuter P, Bushway S. *Preventing crime: what works, what doesn't, what's promising.* Washington: National Institute of Justice; 1997.
19. Brasil. Ministério das Cidades. Conselho Nacional de Trânsito. Departamento Nacional de Trânsito. *Código de trânsito brasileiro: instituído pela Lei nº 9.503, de 23 de setembro de 1997.* 3. ed. Brasília: DENATRAN, 2008. 232 p.
20. Alves MJ. Licença para matar: o direito dos ciclistas e a necessidade de revisão do Código da Estrada. *Rev Port Ciênc Desp.* 2005 ago; 12(8):33-48.
21. Chavanne X, Toulouse P. *O capacete: útil, indispensável e obrigatório?* São Paulo: Phorte, 2002.

22. Miranda AC,Barbosa FJ. Capacete para ciclistas: usar ou não usar? Curitiba: Educarte, 2006
23. Brasil. Ministério da Saúde. Tendência do número de internações hospitalares por arma de fogo e política de desarmamento. Ministério da Saúde: Brasília;2005. Disponível em:
<http://www.mj.gov.br/senasp/estatisticas/est_desarmamento.html>.
24. Brasil. Ministério da Saúde. Secretaria de Vigilância em Saúde do Ministério da Saúde. Avaliação das mortes por arma de fogo 2004. Ministério da Saúde: Brasília;2005.
25. Motamedi MHK, Sagafinia MM, Famouri-Hosseinzadeh M. Oral and maxillofacial injuries in civilians during training at military garrisons: prevalence and causes. Oral Surg Oral Med Oral Pathol Oral Radiol. 2012 July;114(1):49-51.
26. Kotecha S, Scannell J, Monaghan A, Williams RW. A four year retrospective study of 1,062 patients presenting with maxillofacial emergencies at a specialist pediatric hospital. Br J Oral Maxillofac Surg. 2008 June;46(4):293-6.
27. Allareddy V, Allareddy V, Nalliah RP.Epidemiology of facial fracture injuries.J Oral Maxillofac Surg.2011;69:2613-18.
28. Lee K, Trend of alcohol involvement in maxillofacial trauma. Oral Surg Oral Med Oral Pathol Oral Radiol Endod. 2009 Apr;107(4):e9-13.
29. Adrian P. Busingera, Jonathan Krebsa, Benoit Schallerb, Heinz Zimmermanna, Aristomenis K. Exadaktylos. Cranio-maxillofacial injuries in victims of interpersonal violence Swiss Med Wkly. 2012;142:w13687.
30. Leles JLR, Santos EJ, Jorge FD, Silva ET, Leles CR. Risk factors for maxillofacial injuries in Brazilian emergency hospital sample. J Appl Oral Sci. 2010;18(1):23-9.