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Occurrence of oral pathologies at Kinshasa city, Democratic Republic of the Congo: The case of National electricity company dental clinic (from January 2008 to December 2010)

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Abstract
The aim of this study was to determine the occurrence of oral diseases in order to improve their management. It was a descriptive cross-sectional study of clinical case series of patients who were consulted in the department of stomatology of the polyclinic of the National Electricity Company in Kinshasa city, Democratic Republic of the Congo (SNEL/DRC) from January 2008 to December 2010. Out of 706 patients, 53.7% were female and 46.3% were male. The average age of patients was 30.5 (SD±17.5) years. Tooth decay was the most common frequent pathology (72.1%), most affected the Women (40.5%) than the men (31.6%). While, the age group between 16 to 30 years was the most affected (24%) by oral pathologies. The dental pain was the most frequent reason for consultation (90.9%). Dental caries is the most pattern occurrence of oral pathologies and dental pain are the most occurrence reasons of consultation in the workers and families of Dental polyclinic of the National Electricity Company.

Keywords: Oral pathologies, health public problem, Kinshasa city, Democratic Republic of the Congo

Introduction

For many years, the National electricity company of the Democratic Republic of the Congo (SNEL/DRC) recognized the importance of oral health. The World Health Organization (WHO) defines oral health as the absence of chronic oro-facial pain, of cancers of the oral cavity or pharynx, lesions of the oral cavity tissue, birth defects such as cleft lip and palate as well as other diseases or disorders of the oral and maxillofacial regions, known as the craniofacial complex [1]. In fact, the oral health is a determinant of good life quality, because the craniofacial complex allows us to talk, smile, smell, taste, chew, swallow, and protects us against microbial infections and environmental threats, henceforth the oral diseases restrict different academic, professional and personal activities leading to the loss of millions of hours of study and work [2].

On the other side, 60 to 90% of schoolchildren worldwide and nearly 100% of adults have dental caries. Currently, the morbidity is high in America but relatively low in Africa. With the change of living conditions, it is expected the increase of dental caries incidence in many developing countries in Africa, and in particular due to the growing consumption of sugars and inadequate exposure to fluorides [3, 4]. 15 to 20% of middle-aged adults (35-44 years) are suffering by severe periodontal disease [3-5]. 16-40% of children ranging from 6 to 12 years are affected by dental injuries due to unsafe playgrounds, insecure schools, road accidents or violence [6]. Estimates are available on the frequency of different types of malocclusions for a number of countries, mainly in northern Europe and North America. The prevalence of dental and facial irregularities would be 10% according to the Dental Aesthetic Index [7-9]. The incidence of oral cancer ranges from one to 10 cases per 100000 population in most countries [10]. Seeing this variability and lacking of a study in the literature found of these diseases in DRC, particularly among workers and families of SNEL and concerned to move towards a better

Management of these pathologies among its personnel, thus study is conducted in order to determine the pattern occurrence of oral pathologies and the most encountered reasons of its consultation in the Dental polyclinic of SNEL.

2. Materials and methods

This is a descriptive cross-sectional study carried out a series of medical dental records of patients who consulted the dental service from January 2008 to December 2010. The study took place in Kinshasa province, at the stomatology department of the polyclinic of the National Electricity Company of the Democratic Republic of the Congo (SNEL/DRC) and involved 706 medical dental records that after applying the inclusion criteria out of 775 patient records. A survey form was designed specifically for this study. Medical records files and consultation registers book were used as materials for data collection.

The patients or workers as well as SNEL families members who have been consulted the stomatology service during our study period and that possess a consultation form having all the parameters of interest data required for this study were included. And all medical records of patients that were incomplete were excluded. After an informed consent of SNEL authorities, the data collection was done. This was performed by two different groups of dentist surgeons in order to minimize the risk of error of confusion and overwork.

Both groups spent each two months for data collection and each of them was working independently from the other without any knowledge of data collected by the other group. The parameters of interest variables such as age, sex; the year of the consultation, the consultation purpose, and encountered pathologies (diagnosis) were noted and recorded on the survey form. A final session for three weeks took place in order to carry out the differences in data collection by both groups. The collected data were encoded with the help of Microsoft Office Excel® 2007 software and analyzed using SPSS software version 19.0. Fischer's test allowed us to calculate the frequency of pathologies and the average age. The level of significance was set at $p<0.05$.

3. Results & Discussion

Figure 1 shows that the average age of patients was 30.5 (SD±17.5) years, with age extremes ranging from 1-76 years. The most represented age group was 16-30 years with 29.2%.
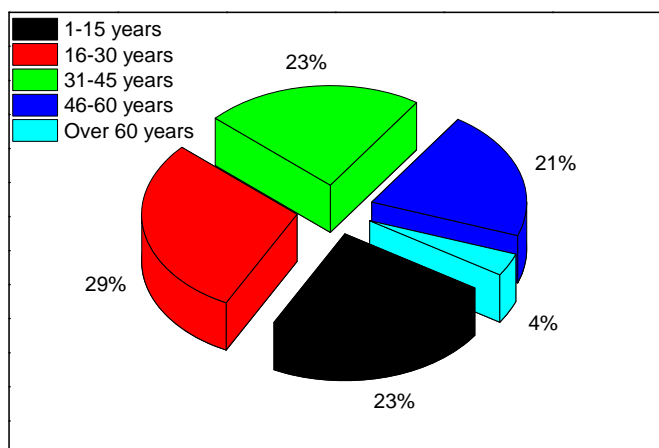

Fig 1: Distribution of patients according to age group

Figure 2 shows that females were the most represented group (53.7%) with a sex ratio F/M 1.2.
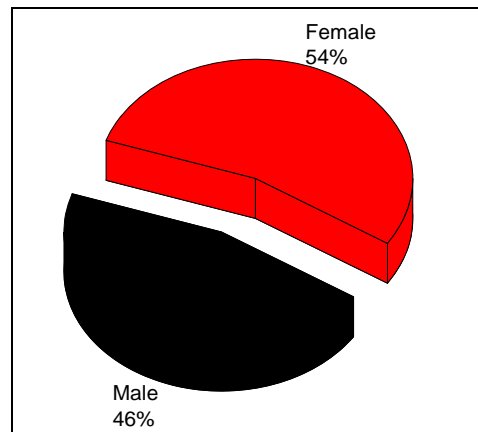

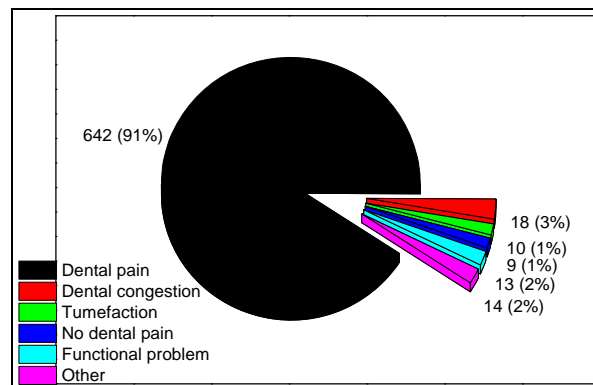**Fig 2:** Distribution of patients according to sex

Fig 3: Distribution of patients according to consultation purpose

From figure 3, the dental pain was the most frequent consultation purpose (91%).

Table 1: Distribution of patients according to sex and purposes of consultation

Purpose of consultation	Sex (%)		Total (%)
	Female	Male	
Dental pain	349 (49.4)	293 (41.5)	642 (90.9)
Non dental pain	4 (0.6)	5 (0.7)	9 (1.3)
Dental congestion	4 (0.6)	14 (2.0)	18 (2.6)
Functional problem	8 (1.1)	5 (0.7)	13 (1.8)
Tumefaction	8 (1.1)	2 (0.3)	10 (1.4)
Other	6 (0.8)	8 (1.1)	14 (2.0)
Total	379 (53.6)	327 (46.3)	706(100.0)

This table revealed that the dental pain was the most represented cause of visit for both sexes with 49.9% for females and 41.5% for males.

Table 2: Distribution of patients according to diagnosis by sex

Diagnosis	Sex (%)		Total (%)
	Female	Male	
Tooth decay	286 (40.5)	223 (31.6)	509 (72.1)
Disharmonie	8 (1.1)	17 (2.4)	25 (3.5)
Dental fracture	16 (2.2)	14 (2.0)	30 (4.2)
Parodontite	48 (6.8)	46 (6.5)	94 (13.3)
Other pathologies*	21 (3.0)	27 (3.8)	48 (6.8)
Total	379 (53.7)	327 (46.3)	706 (100.0)

(*Alveolitis, tonsillitis, prothesis making, impacted tooth, mandibular fracture, prothesis fracturee, stomatitis).

The table 2 revealed that the tooth decay was the most found in females (40.5%) and females suffered more of the oral pathology (53.7%).

Table 3: Distribution of patients according to consultation purposes in accordance with age

Age (years)	Non dental pain (%)	Dental congestion (%)	Odontalgia (%)	Functional problem (%)	Tumefaction (%)	Other (%)	Total (%)
1 – 15	2(0.3)	11(1.6)	141(20.0)	4(0.6)	5(0.7)	2(0.3)	165(23.5)
16 – 30	1(0.1)	4(0.6)	196(27.8)	1(0.1)	2(0.3)	2(0.3)	206(29.2)
31 – 45	3(0.4)	2(0.3)	143(20.2)	5(0.7)	3(0.4)	4(0.6)	160(22.6)
46 -60	3(0.4)	1(0.1)	139(19.7)	2(0.3)	0(0.0)	4(0.6)	149(21.1)
>60	0(0.0)	0(0.0)	23(3.3)	1(0.1)	0(0.0)	2(0.3)	26(3.6)
Total	9(1.2)	18(2.6)	642(90.9)	13(1.8)	10(1.4)	14(2.0)	706(100.0)

Toothache was the most cited purpose of consultation and was predominated among patients between 16 and 30 years (27.8%)

Table 4: Distribution of patients according to diagnosis in accordance with age

Age (years)	Diagnosis (%)					Total (%)
	Tooth decay	Disharmonie	Dental fracture	Parodontite	Other pathologies	
1 – 15	126(17.8)	16(2,3)	6(0,8)	7(1,0)	10(1,4)	165(23,3)
16 – 30	169(24.0)	5(0.7)	3(0.4)	18(2.5)	11(1.6)	206(29.2)
31 – 45	111(15.7)	3(0.4)	4(0.6)	29(4.1)	13(1.8)	160(22.7)
46 -60	91(12.9)	1(0.1)	13(1.8)	31(4.4)	13(1.8)	149(21.1)
>60	12(1.7)	0(0.0)	4(0.6)	9(1.2)	1(0.1)	26(3.7)
Total	509(72.1)	25(3.5)	30(4.2)	94(13.3)	48(6.8)	706(100.0)

The table 4 revealed that the tooth decay was the most diagnosed pathology and was most prominent in the age range 16-30 years (24.0%).

The present study was focused on the frequency of oral diseases in the service of stomatology of SNEL polyclinic/GOMBE, included 706 medical records. The average age of patients was 30.5 (SD± 17.5) years, ranging from 1 to 76 years. This is similar to the study conducted in Senegal in 2005 by Sissoko [11] and in France in 2013 by Catteau et al. [12] who found an average age of 34.6 years and 37.4 respectively.

The most represented age group was between 16 to 30 years with 29.2%. This result can be justified by the fact that at this stage of life, the individual is encroached in the daily train in order to trace a path for his future, henceforth the oral hygiene comes in the second position. These results are similar to the study conducted in France in 2012 by Azerad [13] who found 30.1%. Female gender was the most represented in this study with (53.7%). These results are likewise to those of NGO Mission of Lotonga [14] performed in 2011 in Kinshasa with 59.78%. However, male gender was predominant in the study conducted in France by Azerad in 2012 and in the one conducted by Biken from Senegal in 2008 [15] with 58.6% and 53.2% respectively.

The dental pain was the main reason for consultation (90.9%) in this study. This might be explained by the fact that the majority of patients are unaware of their oral health status and are waiting when they feel uncomfortable then they decide to go to the dentist. The results of the current study are similar to those found by other authors namely: Koko et al. from Gabon in 2009 [16]; Songo et al. in 2010 from Kinshasa [17] and Agoda et al. in 2005 from Togo [18], who found 93%, 79% and 99.4% respectively. However these results were different from those found by Prats et al. in Toulouse in 2003 [19], who observed that dental pain appears at the third place (20.4%) as reason of consultation after the dental checkup (41%) and demand for prosthetic rehabilitation (20.6%). This could be explained by the fact that the majority of people who formed the sample of studies were students of the Faculty of Medicine, supposed to have a certain level of knowledge on oral health. In addition, oral education in France is more advanced than in Africa.

The most affected age group by odontalgia was ranged between 16-30 years (27.8%). It can be seen that toothaches are the reasons of consultation for young adults compared to children and old people. In the socio-cultural context of our country DRC, this phenomenon would be due to the fact that at this stage of life, the individual is encroached in the daily

train in order to trace a path of his future, and the oral-hygiene tooth often comes in second place.

It is observed that the dental congestion was the reason for consultation that prevailed in the age group between 1 and 15 years (1.5%). This aspect could be explained by the fact that in the mixed dentition, there is transitional malposition for which parents would bring their children in consultation. In addition, with the current rise of orthodontic treatment children are easily influenced so that they can more easily require from their parents to be supported for the wrong dental positions such as those parents are much concerned to seek for an orthodontic treatment.

This study also showed that toothache was predominant in both sexes as main reason for consultation with 49.4% and 41.5% for females and males respectively. This shows that before toothache problem both sexes are sensitive even though there was a slight predominance of females. Tooth decay was the most diagnosed disease in this series (72.1%), followed by periodontitis (13.3%). These results are corroborated by those found by Bleno [20] in 2012 in Ouagadougou and Sissoko in 2005 in Senegal with 69.9% for caries and 14.1% for periodontitis. Young adults were more affected by tooth decay (16-30 years) with 24%, while periodontitis was more prevalent among adults (46-60 years) with 4.4% and the dental-maxillary disharmony is a problem of children (1 to 15 years) with 2.2%, while dental fractures were found among adults (46 to 60 years) with 1.8%.

The reasons that seem plausible to tooth decay would be that in this age group men have a lot of concerns and they are less concerned about their oral hygiene. In periodontitis, the older teeth supporting tissues become fragile and more susceptible to microorganisms attacks. For disharmony, it is known that no parent would bear the ugliness of his children and children and adolescents are very concerned about aesthetics. For dental fractures, teeth are already worn, lost their original anatomy and then become fragile so that a hard food would press on a given point of the tooth without a balance force that is distributed to the entire tooth can cause a fracture. Moreover, the bad habits of drinkers who use their teeth as corkscrew can also contribute to the increased incidence of dental fractures.

It was also proved that parodontite was found more in female patients (40.5%). This could be explained by the fact that the female was the most represented group in this study and also

because girls nibble too much compared to men. This study corroborates with the one conducted by Bleno in 2012 Ouagadougou, who found (80.2%). It also appears from the current study that periodontitis was more encountered in males either (6.5%). This study corroborates with that conducted by Ntumba in Lumbubashi city in 2010 [21], who found 11.62%.

4. Conclusion
At the end of this study, it can be concluded that tooth decay was the most frequent Oral dental pathology affecting more women than men and was predominated in the age group between 16 and 30 years. Periodontitis and dental fractures were more prevalent in the age group between 46 and 60 years. The Personnel and their respective families' members of the SNEL Polyclinic should consult the dentist at least twice a year in order to make an early detection of various diseases and provide better care.

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