

EPIDEMIOLOGICAL ASPECT OF PATIENT CONSULTING AT DENTAL CLINIC AT HLOTSE, LERIBE, LESOTHO

A Case Study by Dr Jonathan Tshimwanga Lukusa ,Lesotho
(MBBS, Master in Public Health Student of Texila American University)
Email: jontshimwang@yahoo.fr

ABSTRACT

A descriptive study has been conducted between March and August 2013 on 196 patients consulting the oral clinic at Motebang Hospital aimed at to determine their epidemiological patterns. The findings are as follow:

- The dental cavity is the most common oral disease with 40.0% and 34,8 % of which in severe clinical form;
- the range of age between 6-10 years is consulting more than all others ranges the oral clinic with 17,7 %;
- The dental care (brushing) is performed once a day with 72.2% and horizontally with 64.1%. The children less than 5 years and between 6-10 years do not perform any dental care per day in 28,6 % (CI=28,6±3,9)
- The intake of sugar (especially free sugar) is highest than any with 80.8% and the patients with high intake of sugar developed dental cavity in 81,8%;
- The odds ratio between the sugars' intake and the development of the dental cavity is 2,19 (OR 2,19; CI=44,3±6,7)
- The frequency of jobless was 42.4%
- The facial trauma especially fractures and dislocations of teeth represent 22.7% and are highly more frequent than periodontal diseases which represent 9.5%.
- The frequency of congenital malformations was 4.0%

INTRODUCTION

According to the WHO, the dental illnesses as the tooth decay, the periodontal diseases and the cancers of the oral cavity and the pharynx pose a problem of health everywhere in the world, in the industrialized or developed countries as well as developing country and very serious in the poorest communities. (WHO, 2000 and Peterson, 2013)

Some developing countries essentially struck by poverty like Lesotho ignores the features and the determining factors of these dental illnesses due to lack of continuous and multidisciplinary research in a particularly Lesotho context. What logically lead to an incomplete preventive control departing of recommendations of the WHO that, in its dental report, find that the dental health system must be oriented on the prevention and the primary health care. In the current practice, we realize the insufficiency of the prevention and even lack of dental cares as most of the mouth diseases are that health professional (the general practitioner and the nurse) transfer to the dental practitioner who, moreover, is rare otherwise absent.

The fact that there is scarceness of dental practitioners and especially the lack of research in this domain aggravates the situation that is already precarious. This precariousness is being essentially due to poverty. This lack of research is confirmed by the fact that we couldn't find any old or recent scientific article related to the dental illnesses in Lesotho especially in Leribe.

Indeed, we couldn't find any previous study done regarding mouth health in Hlotse at Leribe District. To the fact, the only absence or better yet the crying quasi-absence of the scientific articles in this part of the country on a bottom of upsurge observed of dental illnesses is sufficient, to this stage, to justify this modest survey. This is how this survey has been led with an objective to determine the epidemiological aspects of the patients consulting the dental clinic in Hlotse at Leribe in Lesotho.

MATERIAL AND METHODS

This is descriptive and retrospective study spreading on the period of two months from the 1st July 2013 to 31st August 2013. The data have been collected at Motebang Dental Clinic located in Hlotse. The total number of the patients having consulted the Motebang dental clinical from May 2013 to July 2013 rose to 987 (Armstrong, 2003 and Leedy, 2010). The total number of 987 patients constituted our population of survey from which the size of the sample has been pulled according to the table of Stoker (As de Vos et al., 2002):

Population	Percentage suggested	Number to investigate
20	100%	20

30	80%	24
50	64%	32
100	45%	45
200	32%	64
500	20%	100
1000	14%	140
10 000	4,5%	450
100 000	2%	2000
200 000	1%	2000

As our study population is close to 1000 in the table of Stoker, our sample size is 140. During our data collection we totalized 246 patients files who have been interviewed of which 196 have only been included and 48 others have been excluded.

Indeed, all patient of any age and gender who consulted the dental clinic during the period of July 2013 to August 2013 were included in this study we had a total number of 246 patients. However, we excluded all patients whose questionnaire was filled incompletely by omission of gender, age or any question in the survey or any file that doesn't have a specify diagnosis.

Among the 48 excluded, 32 have been excluded for omission to specify age in years and 16 have been excluded for omission to specify the retained diagnosis. Therefore, we kept the sample size of 196 respondents, what is extensively superior to 140 suggested by the table of Stoker.

The category "others" regroup all less frequent diagnoses. That wants to say, of the diagnoses that have only been kept twice an all along the harvest of the data. It is about of:

- Diagnoses retained only one times: fluorosis, oral candidiasis, parodontitis, hypercalcification, cyst of the tongue, mandibular Burkitt, myelolysis, oral polyp.
- Diagnoses retained two times: oral abscess, abrasion, phlegmon, included, semi-included, granuloma. We took the four classic tastes as a basis (sugary, salty, sour and bitter) to try to determine the preferences of consumption.

For that, we have submitted to patient open-ended questions with sub-questions in relation to what is really consumed once he/she recognizes his/her gustatory preference.

This is how the majority of patients investigated recognized the daily consumption repeated of sugars as cookies, the sugars crystals in the market, the sweet and chocolates. Some investigated ticked two tastes at a time, to know the sugary-salty and sugary-sour. We considered in our

survey that all the one that generates any money allowing him to enjoy a certain autonomy by any work, had to be taken in the category "workers" to separate them from true unemployed person.

The following formulas have been used for the calculation of the interval of confidence to study different variables (Bohn et al., 2010):

- For a proportion, $IC = p \pm 1,96 (pq/n)^{1/2}$
- For an average, $IC = m \pm 1,96 (S^2/n)^{1/2}$

Where p is the proportion observed in the sample, $q = 1 - p$,

n is the size of the sample,

m is the average in the sample,

S² is the variance in the sample. The odds ratio has been also used for evaluation of the association between the consumption of sugars and the apparition of the tooth decay according to the following formula (Mash, 2011):

$$\text{Odds ratio} = \frac{a \times d}{b \times c}$$

We chose the acronym CAO that informs us on the number of the teeth Carries (C), Absent (A) and Obstructed (O)

The tooth presents several faces, to know,:

- Face occlusal (or grinding for the molars and premolar) presenting some reliefs (cusps) and of the pits (furrows). One speaks of free side for the canines and the incisors.
- Face proximal or the face mesial
- Face distal
- Palatine face for the superior teeth or lingual face for the lower teeth
- Vestibular face

The data have been seized and treated with the help of the SPSS (Software Package of Social Sciences), version 14.0.1 for the cross tabulation and frequency table analysis.

RESULTS

2.1. Distribution of patients according to age.

Tableau 1: distribution of patients according to ages

Age	Frequency	%
≤ 5 years	16	8.1
6-10 years	35	17.7
11-15 years	16	8.1
16-20 years	24	12.1
21-25 years	24	12.1
26-30 years	25	12.6

This table shows the class of age lower or equal than 5 years and the class of age of 6-10 himself brush not of the all per day in 28,6%(IC=28,6±3,8) of case whereas the majority of the class of age of 6-10 years only brush once per day in 21,7% (IC=21,7±2,9) of case.

2.2. Distribution of patients according to gender

Tableau 2: distribution of patients according to gender

Gender	Frequency	%
Masculine	98	49.5
Feminine	100	50.5
Total	198	100

This picture shows that the two genders are fairly affected either 49,5% (IC=49,5±6,8) for the male gender and 50,5% for the female.

2.3. Distribution of patient according to profession

Table 3 : Distribution of patient according to profession.

Employment	Frequency	%
No job	84	42.4
Employee	26	13.1
Trader	2	1.0
Student	20	10.1
Pupils	47	23.8
House wife	7	3.5
Soldiers	10	5.1
missionary	2	1
Total	198	100

This table unemployed the clinic more student and respectively 42,4% and 18,7% of cases.

shows that the person consult than come pupils

2.4. Distribution of patient according to the number of teeth brushing per day

Table 4: distribution of patient according to the number of teeth brushing per day

Tooth brushing	Frequency	%
None	7	3.5
Once a day	143	72.2
Twice a day	40	20.2
Three times day	6	3.0
Imprecise	2	1.0
Total	198	100

The majority of our investigated patient proceed to the brushing of the teeth once a day means 72,2% of case

2.5. Distribution of patient according to the manner of teeth brushing per day

Table 5: distribution of patient according to the manner of teeth brushing per day

Manner of brushing	Frequency	%
Vertical	6	3.0
Horizontal	127	64.1
Combined	53	26.8
Imprecise	12	6.1
Total	198	100

It is evident from this picture that the majority of our investigated patient prefer the sugary taste means 80,8% of case.

2.6. Odds ratio between sugar consumption and dental decay

Table 6 : Odds ratio between sugar consumption and dental decay

Sugar / decay	Yes	No	Total
Yes	71 (44.3%)	55(34.3%)	160(100%)
Non	10(37.0%)	17(62.9%)	27(100%)
Total	81	72	340

2.7. Distribution of patient according to diagnosis

Table 7: Distribution of patient according to diagnosis

Diagnosis	Frequency	Percentage
Pulpitis	137	69.1
Traumatism	36	18.2
Parodontopathy	17	9.5
Dental mal-obstruction	16	8.1
Carries	11	5.6
Dental stump	9	4.5
Malformations	8	4.0
Necrosis of pulp	7	3.5
Pericuronitis	8	4.0
Others	17	8.6
Total	198	100

This picture shows that the majority of our investigated patient have pulpitis that is to say 69.1%; those consistent of traumatism 18, 2%. Then comes parodontopathy 9.5%, dental mal-obstruction 8.1% and caries represent 5.6%.

2.8. Crossorting between the food taste preference and the diagnosis

Table 8: Distribution of patients between the food taste preference and the diagnosis

Food taste and diagnosis	Sugary	Salty	Sour	Bitter	Sugary-salty	Sugary-sour	Total
Pulpitis	55	6	2	1	4	1	69
	79.7%	8.7%	2.9%	1.4%	5.8%	1.4%	100%
Traumatism	26	5	3	0	2	1	36
	72.2%	13.9%	8.3%	0%	5.6%	1.4%	100%
Malformations	6	0	2	0	0	0	8
	75.0%	0%	25.0%	0%	0%	0%	100%
Parodontopathy	14	1	0	0	0	0	15
	93.3%	6.6%	0%	0%	0%	0%	100%
Dental mal-obstruction	15	0	1	0	0	0	16
	93.8%	0%	6.3%	0%	0%	0%	100%
Dental stump	7	1	0	0	1	0	11
	77.8%	11.1%	0%	0%	9.1%	0%	100%
Caries	9	0	0	1	1	0	7
	81.8%	0%	0%	9.1%	9.1%	0%	100%
Necrosis of pulp	7	0	0	0	0	0	0
	100%	0%	0%	0%	0%	0%	0%
Pericuronitis	7	0	0	0	1	0	8
	87.5%	0%	0%	0%	12.5%	0%	100%

Others pathology	14	0	2	0	1	0	17
	82.4%	0%	11.8%	0%	12.5%	0%	100%
Total	160	14	10	3	10	1	198
	80.8%	7.1%	7.1%	1.5%	5.1%	0.5%	100%

This picture indicates that the investigated patient that prefer the sugary taste developed the caries and pulpitis more in 82,05% (64)

DISCUSSION

3.1. DISTRIBUTION OF THEM INVESTIGATED ACCORDING TO THEIR AGES IN YEARS

The class of age of 6-10 years is the more concerned means 17,7% (IC=18,7±2,5) of cases consult the dental clinic. It is explained by several factors of which notably a deficient dental hygiene of the children on this age. It has been revealed by the crossorting analysis between the dental hygiene and the age while showing that the age ≤ 5 years and the age of 6-10 years don't brush at all per day in 28,6%(IC=28,6±3,8) of case whereas the majority of age 6-10 years only brushes once per day.

WHO, in its report on the dental disease, found that 60 to 90% of the children in school age have some caries (WHO, 2000 and Peterson, 2013). However our survey found that 31,1% (IC=31,1±4,2) of the children between 6 and 10 years (what corresponds roughly to the school age) have the caries. This difference could be due to the fact that WHO report of is based on fundamentally communal studies (community of school children) whereas our study is done in the hospital setting including all ages.

It has also been found in this study that the age ≥ 36 years was the more concerned means 18,7% of case. However this class is too large in its interval because it is covering from 36 to 80 years and therefore it would not represent this proportion of 18,7% (IC=18,7±2,5) if it was split up into intervals of 5 years. This is how we retained the age of 6-10 years as being truly the more touched.

3.2. DISTRIBUTION OF INVESTIGATED ACCORDING TO THEIR GENDER

The two genders are touched fairly mean 49,5%(IC=49,5±6,8) for the masculine gender and 50,5% for the feminine gender.

3.3. DISTRIBUTION OF THEM INVESTIGATED ACCORDING TO THEIR PROFESSION

The unemployed person consult more the dental clinical followed by the student respectively 42,4% and 18,7% of case. It is especially important because the WHO affirms that the dental health is a serious problem in the poor communities (WHO, 2000 and Peterson, 2013).

3.4. DISTRIBUTION OF INVESTIGATED ACCORDING TO THE NUMBER OF TIME AND DENTAL BRUSHING MANNER

Our investigations showed that the majority of the patients not having consulted the dental clinical use to brush their teeth only once per day mean 72,2% of case.

The dental brushing done only once a day is 72,2% and those brushing on horizontal manner is 64,1%. The children of less than 5 years and those between 6-10 don't brush the teeth mean 28,6% (IC=28,6±3,9), whereas a study in Corsica showed that the majority of the children of 6 and 12 years brushes two times per day (Delaney et al., 2000 and Infante et al., 1973). The majority of our investigated proceed to the brushing in a horizontal manner is 64,1% of case. However the manual of the dental health published by the WHO for dental program recommends a daily dental hygiene and to be maintained for the whole life, from the calf tooth at 6 months to 8 months for the central incisors, the mouth and the teeth must be cleaned, to the minimum once per day or to best after every meal.

A simple mouth rinsing with water is not sufficient to eliminate the dental plate (this soft and whitish deposit on the teeth that is colonized by more and more numerous and pathogenic bacteria as it accumulates), but it is recommended after rinsing the mouth to use again the tooth-brush or the stick rub-tooth. The brushing must reach the surfaces of all teeth as well as the gums, it is necessary to insist on the fact well that the brushing of the occlusal side of the tooth; the food deposits and the dental plates especially accommodate themselves to the level of the collar and between the teeth; these zones will be therefore the main targets of cleaning.

The molars and the Palatine faces of the teeth are very often forgotten. They will be the subject of a particular attention. The bleeding must not be an obstacle to the brushing. On the contrary, a regular brushing will eliminate the bleeding.

Indeed, it is necessary to always brush from the gum toward the tooth but ever horizontally (to brush the red toward the white), to brush the teeth on all their faces while using the brush vertically for the previous teeth and to brush with a horizontal movement on the occlusal face of the molars.

Finally, the brushing must be efficient without being brutal. It will last six minutes means that three minutes each side of the mouth (Moreiro et al., N.D).

3.5. DISTRIBUTION OF INVESTIGATED ACCORDING TO THEIR DIAGNOSIS

Our study shows that the majority of our investigated suffering from tooth decay is essentially 40,4% consistent of traumatism facts of fractures and dislocations are 18,2% of case. The parodontopathies essentially made of desmodontitis and loosening only represents 9,5% of case.

The stumps, that represent 4,5% of case, are the dental fractures occurring at the level of the gum. Indeed, they should be classified among the traumatism. However for the same aforesaid reasons, they are separated from the traumatism. Thus, taken in them totality, the traumatism represent 22,7% of case.

Our results are corroborated with a lot of studies and reports which confirm that the tooth decay is the most frequent dental pathology (Peterson, 2013; Delaney et al., 2000 and Burt et al, 1989). However, contrary to our investigation, this same studies also mention that the parodontopathy is as frequent as the tooth decay.

Indeed, it has been recognized that the maxillo-facial traumatism increases in alarming manner in Africa with shapes of traumatism due to the interpersonal violence in the community.

The observation of dental health few data are provided on the prevalence of congenital illnesses and benign tumours and it is due to the deficiency of reliable information and lack of research (Moynihan, 2005) . However, our survey found that the congenital malformations represent 4,0% of pathologies essentially diagnosed composed of teeth supernumeraries and hypoplasics. To the fact, comparatively to other dental diseases, the tooth decay was the more frequently recorded despite the fact that some studies indicate that his prevalence is generally low and static.

3.6. DISTRIBUTION OF INVESTIGATED ACCORDING TO THEIR FOOD TASTE CONSUMPTION PREFERENCE

The majority of our investigated prefer the sugary taste 80,8% of the cases and developed the caries more in 82,05%(64) compared to the other dental pathologies diagnosed.

The odds ratio between the consumption of sugars and the tooth decays is of 2,19. (OR 2,19; IC=44,3±6,7). It shows that the consumption of sugars is a risk factor in tooth decay. Indeed, the human experimental studies, the epidemiological studies and the animal studies brought proofs convincing the association between the quantity, frequency of the fermentable sugars intake and the dental illnesses, essentially the tooth decay (Moynihan et al., 2004 and Moynihan, 2005).

Certainly, it is true that several risk factors are incriminated in the tooth decay occurrence. However, these factors didn't constitute the object of this survey, except the consumption of sugars. It is about of:

- Factors of general order: (for example: diabetes) and food.
- Factors of local order: dental plaque and tartar.

Indeed, the absorption of sugars allows the bacteria to multiply on the dental plaque to develop (WHO, 2000)

CONCLUSION

It clears through this study that the tooth decay is the most frequent dental pathology in Hlotse / Leribe what means that the patient consults the dental clinical in advance stage of the illness.

The interval age of 6-10 years consults more the dental clinic. It means that it is this age group that should be considered as our target stage to stage our sensitisation as priority and the preventive measures.

The tooth brushing is sometimes done inadequately because the majority of our investigated brush solely of a horizontal way and that the children of less than 5 years and a proportion of the children of 6-10 years do not brush the teeth at all. It gives account of one deficient dental hygiene.

The dental traumatism made fractures, stumps and dislocations are highly more frequent than the parodontopathies contrary to the magazine of the literature.

REFERENCES

- 1) Armstrong D., Grace J. (2003) Research methods and audit for general practice, Oxford University press, 3rd edition; p 27-38
- 2) As de Vos, Strydom H., Fouché C.B. and Delport C.S.L., (2002) Research at Grass roots. 2nd Edition. Van Schaik Publishers p 198-209
- 3) Bohn G., and Zech G. (2010) Introduction to Statistics and Data Analysis for Physicists. Accessed on 04th July 2013; Available at: http://www-library.desy.de/preparch/books/vstatmp_engl.pdf
- 4) Burt B.A., Albino J.E., Carlos J.P., Cohen L.K., Dubner R., Gershen J.A and Greene J.C (1989): Advance in the epidemiological study of oral-facial diseases Vol.3 No. 1, p 30-

- 4) http://deepblue.lib.umich.edu/bitstream/handle/2027.42/66664/10.1177_08959374890030010301.pdf?sequence=2
- 5) Delaney J.E, and Keels M.A (2000) Paediatric oral pathology: Soft Tissue and Periodontal Conditions. Vol. 47 N.5 <http://pedclerk.uchicago.edu/sites/pedclerk.uchicago.edu/files/uploads/1-s2.0-S0031395505702601-main.pdf>
- 6) Infante P.E and Russell A.L., (1973) An Epidemiologic Study of Dental Caries in Preschool Children in the United States by Race and Socioeconomic Level http://deepblue.lib.umich.edu/bitstream/handle/2027.42/67244/10.1177_00220345740530023501.pdf?sequence=2
- 7) Leedy P.D.J., and Ormrod, E. (2010). Practical Research: Planning and Design 9th Ed. Pearson.
- 8) Mash R., (2011) Handbook of Family medicine, Oxford university, South Africa Press, 3rd Ed.
- 9) Moreira R.S., Magalhães C.P.A., Cruz F.O. and Pernambuco R., (N.D) Epidemiology of Dental Caries in the World http://cdn.intechopen.com/pdfs/29340/InTech-Epidemiology_of_dental_caries_in_the_world.pdf
- 10) Moynihan P.J. (2005) The role of diet and nutrition in the etiology and prevention of oral diseases. Bulletin of the World Health Organisation, p 83(9) <http://www.who.int/bulletin/volumes/83/9/694.pdf>
- 11) Moynihan P. and Petersen P.E., (2004) Diet, nutrition and the prevention of dental diseases public Health Nutrition: 7(1A), 201–226 DOI: 10.1079/PHN2003589 http://www.who.int/nutrition/publications/public_health_nut7.pdf
- 12) Petersen P.E., (2013): The World Oral Health Report 2003: Continuous improvement of oral health in the 21st century - the approach of the WHO Global Oral Health Programme https://extranet.who.int/iris/restricted/bitstream/10665/68506/1/WHO_NMH_NPH_ORH_03.2.pdf
- 13) WHO (2000), Oral Health in the African Region: A Regional Strategy www.ajol.info/index.php/ajoh/article/download/56990/45386