



Spectrum of diseases and pattern of referral at the Oral Diagnosis Clinic of a tertiary dental center

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Abstract

Objective: The purpose of this study was to determine the scope of oral diseases and referrals within the Dental Centre at the University of Port Harcourt Teaching Hospital (UPTH).

Method: The clinic logbook of the Oral diagnosis clinic of the Dental centre, University of Port Harcourt Teaching Hospital was reviewed retrospectively over an 18-month period. Demographic and clinical data of all patients were retrieved and statistically analyzed using SPSS Version 17.0.

Result: There were 2,249 patients comprising 945 (42%) males and 1,304 (58%) females. The age range was 1 month to 95 years and mean age, 29.9 ± 16.8 years. The mean age for male was 30.4 ± 17.3 years and for female, 29.5 ± 16.4 years. Based on their age, patients were categorized into children, youth, middle age and elderly. Patronage was predominantly by the youth category (age 17- 40 years). The predominant pathology presented was complicated dental caries (41.1%). Traumatic injuries showed predilections for the male gender (87 males compared to 58 females). Most of the referrals were to the Oral and Maxillofacial Surgery Clinic (825 patients) and tooth extraction (741 adults, 147 paediatric extractions) was the major reason for referral.

Conclusion: In spite of the worldwide epidemiological report of its reducing incidence, dental caries and its sequelae are still the major reasons for patronage of dental health services in our environment and dental extraction is the mostly consumed treatment modality.

Keywords: Oro-facial diseases, Dental clinic attendance, Referrals

Introduction

As the gateway to the body, the oral cavity is exposed to a wide array of pathogenic substances and conditions. Although dental caries and periodontal diseases constitute the major afflictions to oral health, the spectrum of orofacial diseases is broader and entails other infectious diseases, traumatic injuries, neoplastic diseases, developmental and congenital defects as well as other causes of acute and chronic orofacial pain^(1,2).

In spite of the aesthetic, functional, psychosocial and the evolving diagnostic importance of the mouth, oral health care remains a largely neglected domain⁽³⁾; in terms of viable clinical, experimental and epidemiological researches, funding, public education and public utilization. The result is a society characterized by dental health illiteracy with attendant late diagnosis, advanced stage presentations and avoidable complications leading to greater consumption of expensive restorative and surgical treatments instead of affordable preventive and conservative options⁽⁴⁾.

It is the authors' opinion that valid data gathering from respective dental health care outlets would enhance understanding of predominant oral health problems in respective gender and age categories. This will in turn

inform appropriate local policies and prioritization in health planning and public dental education. The aim of this study was to determine the spectrum of oral diseases, pattern of presentation across various age categories and between the male and female gender, pattern of specialist clinic referrals and services consumed by patients attending a comprehensive tertiary Dental Centre in the Niger-Delta region of Nigeria.

Materials and Method

Study setting

The Dental Centre of the University of Port Harcourt Teaching Hospital became a comprehensive tertiary dental hospital barely five years ago. It is the only such centre in the Niger-Delta region of Nigeria beyond Benin City. The Oral Diagnosis Clinic of the Dental Centre is the first point of call and sorting point for all patients visiting the Dental Centre. The clinic is manned by well trained and experienced dental residents (officers) supervised by a consultant oral physician and pathologists with supports from other dental specialists when required. In the clinic, diseases are initially diagnosed and patients referred to appropriate specialist clinics for definitive management.



A retrospective review of the logbook of the Oral Diagnosis Clinic was conducted to select patients presenting for the first time over an 18-month period spanning January 1, 2009 to June 30, 2010. Patients visiting for follow up were excluded. The relevant data retrieved were demographic information (specifically age and gender), disease diagnosed, specialist clinic to which referred and the treatment required. Based on their age, the patients were categorized into Children (0 - 16 years), Youth (17 - 40 years), Middle age (41 - 64 years), and Elderly (65 - 95 years). Individual diagnosis was specified, but dental caries was separated into uncomplicated dental caries (i.e. no pulpal involvement) and complicated dental caries (with pulpal involvement and other sequelae).

Data analysis

Using the Statistical Package for Social Sciences (SPSS), Version 17.0, SPSS Inc., Chicago, IL, USA, descriptive statistical analysis was performed to determine the relative proportion of patients within various age categories and gender group, disease types and treatment options. Prevalence of disease types across age categories was compared using Pearson's Chi-square test. P-values less than 0.05 established statistical significance.

Results

There were 2,249 patients comprising 945(42%) males and 1304(58%) females giving a male to female ratio of 1:1.4. They were aged ranged from 1 month to 95 years, with a mean age of 29.9±16.8 years. Mean age for male and female were 30.4±17.3 and 29.5±16.4 years respectively; demonstrating no significant statistical difference (p = 0.240). The distribution of patients by age categories and gender is shown in (Table 1). The most common presenting complaint were pain,

occurring in 1,654 cases. Of these, 924 (55.9%) were associated with complicated dental caries, 416 (25.2%) resulted from periodontal diseases, 145 (8.8%) were trauma related, and 116 (7.0%) involved pericoronitis of mandibular third molars, oral ulcers was the least frequent cause of pain (2, 0.1%) (Table 2). The remaining 595 patients presented with other complaints such as perceived hole in the tooth, food lodging, bad breath, misaligned detrition, oral/jaw swelling, oral sores etc. The most frequently diagnosed pathologies was dental

Table 1: Distribution of patients across age and gender categories

Age category	Sex		Total
	Male	Female	
Children (0-16years)	191 (45.5%)	229(54.5%)	420(18.7%)
Youth (17-40years)	521(39.5%)	797(6.5%)	1318(58.6%)
Middle age (41-64years)	190(45.6%)	227(54.4%)	417(18.5%)
Elderly (65-95 years)	43 (45.7%)	51(54.3%)	94(4.2%)
	945(42.0%)	1304(58.0%)	2249(100.0%)

Chi-square p-values = 0.024

Table 2: Causes of orofacial pain in the study population

Cause of pain	No. of patients
Complicated dental caries	924(55.9%)
Periodontal diseases	416(25.2%)
Orofacial trauma	145(8.8%)
Third molar related	116(7.0%)
Dentinal sensitivity	38(2.3%)
Chronic neuropathic pain	8(0.4%)
Temporomandibular joint dysfunction	5(0.3%)
Oral ulcer	2(0.1%)
Total	1654 (100%)

Table 3: Spectrum of diagnoses according to age categories and gender

Diagnosis	Age category				Sex		Total
	Children	Youth	Middle age	Elderly	M	F	
Dentine sensitivity	0	22	15	1	20(52.6)	18(47.4)	38(1.7%)
Uncomplicated dental caries	67	153	29	3	97(38.5)	155(61.5)	252(11.2%)
Complicated dental caries	114	589	181	40	373(40.4)	551(59.6)	924(41.1%)
Dental & Maxillofacial trauma	39	76	27	3	87(60.0)	58(40.0)	145(6.4%)
Periodontal diseases	3	253	119	41	173(41.6)	243(58.4)	416(18.5%)
Pericoronitis & impacted lower third molars	5	106	4	1	37(31.9)	79(68.1)	116(5.2%)
Neoplasms	7	27	4	3	16(39.0)	25(61.0)	41(1.8%)
Oral & Jaw cysts	12	12	0	0	9(37.5)	15(62.5)	24(1.1%)
Chronic neuropathic pain	0	4	4	0	3(37.5)	5(62.5)	8(0.4%)
Malocclusion	72	29	4	0	51(48.6)	54(51.4)	105(4.7%)
Others	101	47	30	2	79(43.9)	101(56.1)	180(8.0%)
Total	420	1318	417	92	945(42.0)	1304(58.0)	2249(100.0%)



caries [complicated caries (41.1%) and uncomplicated dental caries (11.2%)], periodontal diseases (18.5%), traumatic injuries (6.4%) and malocclusions (4.7%). Prevalence of cystic (1.1%) and neoplastic oral diseases (1.8%) were comparatively low (**Table 3**). While all other conditions were commoner in females, traumatic injuries presented a clear predilection for the male gender (87 males compared with 58 females). From the pattern of referrals presented in (**Table 4**), the Oral and Maxillofacial Surgery Clinic received more patients, followed sequentially by Restorative Dentistry, Preventive Dentistry, and Paediatrics Dentistry Clinics. Tooth extraction was the most frequently received treatment

involving 741 adults and 147 paediatric patients. Therapeutic and prophylactic scaling and polishing was required in 361 cases (279 adults, 82 paediatrics). Salvage procedures such as conservative tooth filling, root canal therapy (RCT) and deep curettage were also frequently required. Four hundred and thirty two tooth fillings (324 adults, 108 paediatric), 132 RCT (114 adults, 18 paediatric) and 122 deep curettage (119 adults, 3 paediatric) were required. Out of 924 patients with complicated dental caries, 668 patients opted for tooth extraction while 256 preferred RCT.

Table 4: Pattern of referrals to specialist clinics and required treatments

Specialist Clinic	Treatment Required	N(%)	Total
Oral & Maxillofacial Surgery	Tooth Extractions	741 (89.8)	825(38.0)
	Intermaxillary fixations	31 (3.8)	
	other surgical procedures	53 (6.4)	
Orthodontics	Interceptive orthodontics± Removable appliance	58 (100.0)	58(2.8)
Paedodontics	Tooth extraction	147(37.8)	390(17.9)
	Pulp therapy	18 (4.6)	
	Scaling & Polishing	82 (21.0)	
	Deep curettage	3(0.8)	
	Intermaxillary fixation	6(1.5)	
	Surgical procedures	24(6.2)	
	Tooth filling (Amalgam + Composite)	108(27.6)	
Denture fabrication	2(0.5)		
Periodontics	Scaling and polishing	279 (70.1)	398(18.4)
	Deep curettage	119 (29.9)	
Restorative	Tooth filling	324(65.1)	498(22.9)
	Root canal therapy	114(22.9)	
	Denture fabrication	20(4.0)	
	Advance conservative	2(0.4)	
	Tooth desensitisation	38(7.6)	

Note that non specific treatments such as prescription of medications, counseling, observation etc are not included.

Discussion

Health behaviour is the action taken by an individual who considers himself healthy, for the purpose of preventing disease or detecting it at an early stage⁽⁵⁾. Dental clinic attendance is one of the four preventive oral health behaviours recommended and promoted by the London Health Education Authority^(5,6). In the developing countries, oral health awareness and literacy is still poor, hence, health behavior is improper with individuals seeking oral health care when a problem is perceived or worsens^(7,8). As previously observed in several clinic based studies^(8,9,10,11), there were more females than males attending the dental clinic. The reasons so far adduced are that females tend to

have more dental fears⁽¹²⁾ and are more meticulous about their general well being^(13,14). To the contrary, a previous Nigerian clinic based study reported greater male attendance⁽¹⁵⁾; the author did not give any reason for this unusual observation. We categorized patients by their age related developmental milestones into children, youth, middle age and elderly. This was in order to identify the differential clinic attendance rate, to understand the treatment needs of the various categories and to determine the category to whom specific oral health education and promotion strategies could be targeted. We observed the highest clinic attendance rate among the youth and the lowest



among the elderly. This observation is similar to previous reports in which patients in their 3rd and 4th decades were noted to present early for dental treatment^(18,10,15,16) and those in which poor utilization of oral health care services was noted among the elderly^(17,18).

The age bracket of 17 to 40 years is perhaps the most active period of a human life. It is a wide transition from young adulthood to old age with attendant health risks associated with; diminishing immunity, high-risk behaviours and exposure to pathogenic substances. In addition, at this stage, issues of personal aesthetic appeal, social acceptance and economic adventures are the major drives. Hence, an individual is likely to seek solution to any problems perceived to inhibit these pursuits. Incapacitating dental pain, dentofacial injuries and chronic oral diseases could constitute such a hindrance. Another visible explanation for youth preponderance in this study is the location of our hospital in a university environment with a huge youthful population of staff and students.

On the other hand, low attendance by the elderly might be related to the traditional misconceptions about oral health care of the elderly in our environment. Toothloss and mastication disability are perceived to be obligatory features of aging and dental aesthetics is not expected to receive significant attention. However, Goep et al⁽¹⁷⁾ and Vysniauskaite and Vehkalahti⁽¹⁸⁾ noted that dental fear and referral to tertiary centers (usually a considerable distance from home) are major obstacles to oral health service utilization by the elderly. They suggested on-site community services as alternative approach to improve oral health care among this group.

The commonest reason for patients' visits to the dentist is pain. This is particularly so in an environment where patients present at advanced stage of dental diseases. Similar observations were noted in previous studies from Africa and other developing countries^(7,15,19,20). However, this contrasts findings in some developed countries where oral health literacy is higher and oral health behaviour is better. An example is found in the study by Ivana et al⁽²¹⁾ in Croatia where 83.5% of the patients came for reasons other than oro-facial pain. In this study, over 70% of patients presented due to pain from various causes. The Pain mostly resulted from complicated dental caries and periodontal diseases, which are largely preventable. This further underscores the need for preventative and proactive dental health behavior in the population. Pain, whether acute or chronic, poses significant limitation to quality of life⁽²²⁾. It results in work absenteeism, economic losses, and avoidable expenditure on health. Indeed, the impact of debilitating orofacial pain on personal and national economy is yet to be appreciated hence, mere lip service is paid to oral health promotion within the framework of the Nigerian health policy and programmes.

The most frequently diagnosed oral pathologies in the dental clinics are dental caries and periodontal diseases^(7,10,15). These two chronic diseases should not ordinarily present with pain until there is dentinal or pulpal involvement in respect of caries or acute exacerbation in respect of periodontal diseases. Ironically, they were responsible for the major cause of pain in this study, which further confirms the neglect of oral ailments by individuals. Complicated dental caries constituted the most frequent diagnosis. This implies caries that have progressed into and

beyond the pulp thereby causing pain. Similarly, painful periodontal diseases could have resulted from acute exacerbation of chronic periodontitis or periodontal abscesses.

A closer study of **Table 3** gives some clues as to the greater oral health concerns in different age categories. This can be recognized by looking vertically at the proportion of patients in each age category within a disease group or by looking horizontally at the proportion of disease frequencies found in different age categories. By this, we noted that dental caries and malocclusion were the major concerns in children, dental caries, periodontal diseases and pericoronitis were major concerns in youths, while caries and periodontal diseases affected the middle age and the elderly. Viewed across the horizontal path, we noted that dentinal sensitivity is a problem of youth and middle age. Trauma is of greater concern in children and youth, particularly the males. Pericoronitis featured more in female youths, and neoplasm (usually benign) was commonest in the youth. Oral and jaw cysts were dominant among children and youth; however, it is noteworthy that children had more of oral cysts (eruption cyst, mucocele, gingival cyst) while youth had the jaw cysts. Chronic neuropathic pain was a problem of youth and middle age and probably females while malocclusion has no sex predilection. These findings agree with established literature and could offer some direction for targeting specific oral health promotional strategies.

In spite of the overall female preponderance and obvious female dominance in all observed pathologies, notably, traumatic injuries present special predilection for male patients. This is a well-established scenario in the world trauma literature. The reason is basically because of relatively greater physical activities such as high rate of violence, sporting events, criminal tendencies, military participation, driving etc. among the youthful males^(23,24).

Table 4 also shows that the Oral and Maxillofacial Surgery Clinic received the highest referrals. This is probably because of late presentation as tooth extraction was the most frequently required oral surgical service. It was observed that out of 924 patients in which the tooth was salvageable, 668 preferred extraction. This is another reflection of poor motivation, low oral health literacy and poverty. Extraction is the only dental treatment presently covered by the National Health Insurance Scheme (NHIS), hence patients could take advantage of the third party payer opportunity to opt for extraction. The Restorative Clinic offered mostly tooth filling and root canal therapy while the Paedodontics Clinic offers predominantly extraction and tooth filling.

Conclusion

In spite of the worldwide epidemiological report of its reducing incidence, dental caries and its sequelae are still the major reasons for patronage of dental health services in our environment and dental extraction is the mostly consumed treatment modality.

Youthful patients mostly patronized our dental center presenting with advanced caries, acute periodontal diseases and pericoronitis. Trauma was the third major condition presented while the Oral and Maxillofacial Surgery and Restorative Clinics were mostly patronized.



Recommendation

It is recommended that an oral health literacy and promotional program targeted at the youth could drastically reduce the burden of preventable oral health diseases that present in dental clinic. Since the youths are the most economically viable age group, it also means that a considerable economic gain could come from this. In addition, community oral health services should be promoted to increase utilization by the elderly patients to whom tertiary clinic attendance may be undesirable. There is obvious need for intensive advocacy, media publicity and lobbying of policy makers to make public dental education a priority in the Nigerian national health plan.

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