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Full Length Research Paper

Pattern of paediatric oral health presentations in Ghana: A year's retrospective study of a hospital-based clinic

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Oral diseases have a significant impact on individuals and communities. There is however minimal description of the problem among children in Ghana. The objective of this study was to describe the pattern of oral health presentations and primary treatment needs, and to ascertain the average direct cost of therapy per visit. A year's retrospective review (January 2016 to December 2016) was conducted, of patients attending the paediatric dental clinic of the school of Medicine and Dentistry, University of Ghana. Information, including demographic features, presenting complaints and teeth treated were obtained with a computerized questionnaire. The data were analyzed, and a descriptive report generated. 1322 participants' records were used in the study. Of these, 684 (51.7%) were males, with 638 (48.3%) being females. The ages ranged from 10 days to 16 years with a mean age of 8.4 years. Dental caries with its sequelae and periodontal disease were the most frequent findings on presentation. Dentoalveolar abscess and trauma formed 7.1% and 6.7% respectively of presenting findings. The average direct cost of treatment per visit was found to be GHS 75.50 (US$ 16.40). There seems to be an unmet need for oral healthcare among children in Ghana.

Keywords: Oral health, paediatric, healthcare, cost, Ghana.

INTRODUCTION

Oral diseases, being a major public health concern, have a significant impact on individuals and communities regarding pain and suffering, functional impairment and reduced quality of life. It has been suggested that 60–90% of school children worldwide have dental caries[1], probably making it the commonest infectious disease worldwide and affecting five times as many children as asthma[2]. Beyond the staggering prevalence of the condition, however, early oral healthcare for children in Africa would not only prevent discomfort but avert complications from oral diseases. Early healthcare also lessens the unneeded cost of sophisticated and advanced dental treatment; cost regarding both time and money[3,4]. It also reduces school absenteeism associated with oral health morbidity, which inadvertently causes more unsatisfactory academic performance in some children[3]. Proper care and management of child dental needs are, therefore, critical in any nation's health framework and considerations.

The pattern of paediatric dental presentations includes dental caries, periodontal diseases, traumatic injuries, eruption anomalies among others[5]. The description of the pattern of presentations of oral conditions informs global efforts at reducing the burden of oral disease and disability

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of paediatric dental conditions, promotes healthy lifestyles, thus reducing the risk factors hampering good oral health. It also informs the development of oral health systems that equitably improve oral health outcomes[6]. These are especially pertinent in the midst of scarce and disproportionate dental services.[7]

The objective of this study is, therefore, to provide maiden information on the pattern of paediatric dental and oral health presentations in Ghana, using a hospital based clinic as a case study. The dental clinic facility of University of Ghana's School of Medicine and Dentistry, located within the premise of Korle-Bu Teaching Hospital is not only the largest dental referral institution in the country but also operates daily on out-patient basis, providing primary care for near and distant communities alike. This study, aside describing the pattern of oral health presentations and primary treatment needs, ascertains the average direct cost of therapy per visit.

METHOD

The compiled data reviewed for this retrospective study were obtained from client records of clients entered from January 2016 to December 2016 at the paediatric dental clinic of the University of Ghana School of Medicine and Dentistry. This clinic manages patients up to the age of 16 years. All folders within the period were retrieved and reviewed. Information was collected using a computerized questionnaire. The parameters for the collection were; name, age, gender, presenting complaint, primary findings on examination, treatment performed, tooth involved and cost of treatment. Folders with incomplete information were excluded. The data was imported into Stata (Version 14) and analyzed. A description of the pattern of presentation was effected by use of frequency tables and diagrams, and an average direct cost of treatment per visit ascertained.

RESULTS

A total of 2,257 visits were made by 1, 408 patients within the period of the study. Of these, 1322 were used in the study, the difference (86) accounted for by untraceable folders, incomplete records, and unverifiable investigations. 684 were males, and 638 were females, representing 51.7% and 48.3% respectively. The ages ranged from 10-days to 16 years with a mean age of 8.4 years (sd=3.98).

While 65.1% of all the patients were visiting the clinic for the very first time, only 7.8% (103) of the patients turned up for routine asymptomatic visits. Major findings in patients after reconciling with presenting complaints are illustrated in Figure 1.

In comparison with the major findings as illustrated in Figure 1, the 14.36% 'others' was made up of orthodontic referrals, rampant caries, retained roots, mouth ulcers, missing tooth, cleft lip/palate among others, as shown in Table 1.

As shown in Figure 2, the pattern of paediatric dental trauma was distributed across six main presentations namely, soft tissue only, tooth fracture, mobility, intrusion, and avulsion.

Attendance to the paediatric dental clinic showed a trimodal pattern across the period of the study as shown in Figure 3.

Of all patients presenting with dental trauma, 65.6% of them were males. As indicated in figure 4, differences between males and females for the other major presentations were not statistically significant.

Major treatments offered were periodontal treatment with dental prophylaxis & fluoride treatment, glass ionomer and composite restorations, extractions and endodontic therapies. Others consisted of those who were not treated, those referred to other specialist units (primarily the orthodontic unit and oral surgery unit), those needing partial dentures, splinting and operculectomies.

The most treated primary teeth were the lower second molars, followed by the first molars and the upper second molars in the proportions 23.6%, 16.5% and 16.1% respectively.

The most treated permanent teeth were the upper right and left central incisors (18.2% and 17.5% respectively), almost entirely accounted for by trauma (but for four patients). The lower first molars together accounted for 25.4% of permanent teeth treated, while the upper first molars made up 19.3%.

The average direct cost of treatment over the period of the study was GHS 75.50 (US$ 16.40) (sd=US$45.82).

DISCUSSION

Oral health is an essential component of healthcare, a necessity which when absent could cause overwhelming discomfort and disruption in social function. Its effect on children especially could be overwhelming and detrimental to their growth and development[8]. There have therefore been several recommendations for routine dental visits for children, the first being around the time of eruption of the first tooth. Though 7.8% of the patients in the study turned up for asymptomatic, routine visits, the average age among them was 8.5 years. This is probably a manifestation of the low level of dental and oral health education in Ghana, and likely, the sub-region[5]. It is a common health practice for patients to wait till their conditions have worsened before seeking medical help. While cultural health-seeking behaviours may generally have a role to play, many citizens of a low-middle income country (LMIC) as Ghana would probably consider an average routine spending of GHS 75.50 (US$ 16.40) on their children a challenge. Nonetheless, with the right structures and interventions such as enhancing public education and school-based intervention programs, access

Figure 1. Frequencies of presenting complaints.

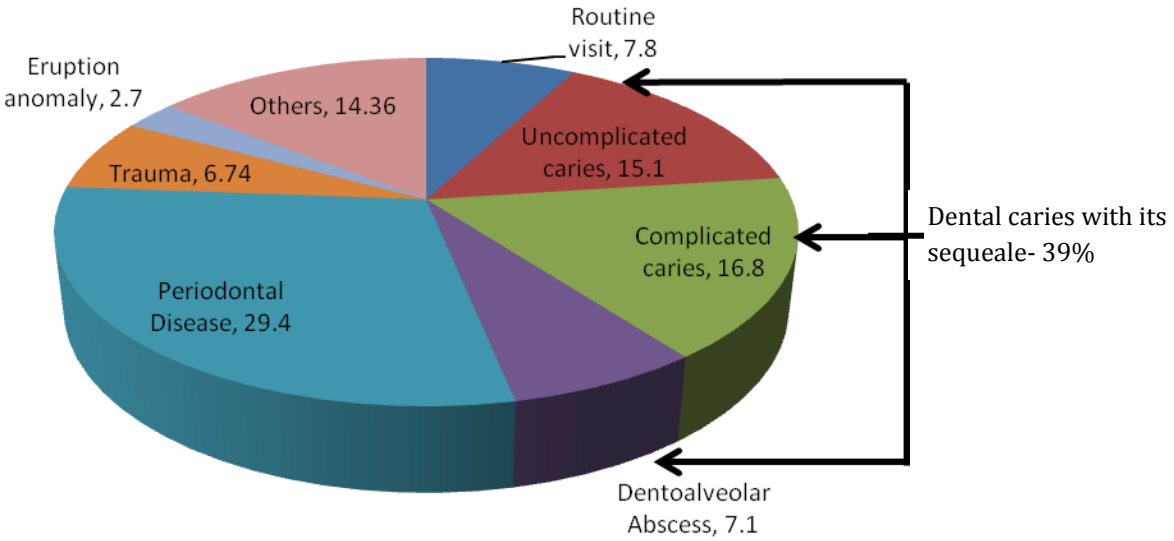
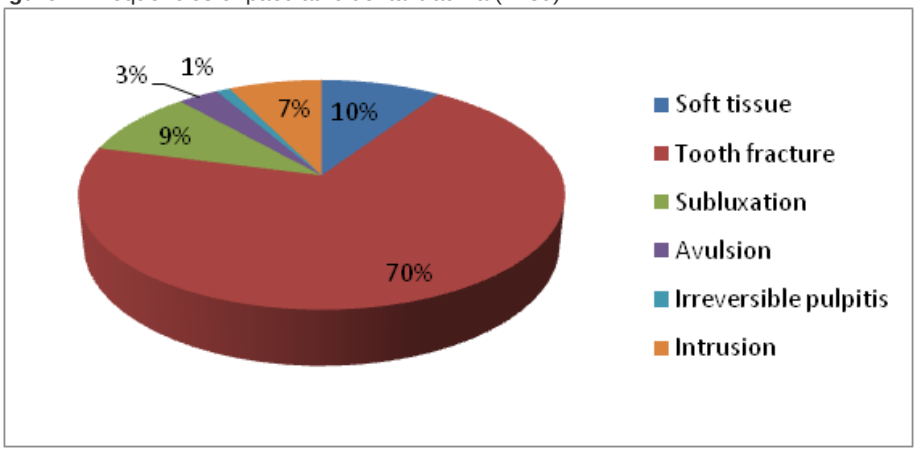


Table 1. Other findings in patients.

Presenting complaints (14.36%)	Frequencies
Orthodontic Referral	5.60
Rampant caries	1.44
Retained roots	2.65
Mouth ulcers	0.38
Missing tooth	1.13
Cleft lip/palate	0.15
Halitosis, Tumours, Pericoronitis, Odontoma, Tonsilitis, Dentine hypersensitivity	3.01

Figure 2. Frequencies of paediatric dental trauma (n=89).



could be improved for children. Routine asymptomatic visits for children must also be promoted as a preventive measure since the social impact of oral disease on children is substantial, indicated by more than 51 million school hours being lost each year to dental-related illness[3]. Our finding of 7.8% (103 patients) who turned up for routine asymptomatic visits is higher compared with Nigeria (4.1%), Kenya (3.6%), India (5.12%)[5] and lower

Figure 3. Trend in the frequency at which paediatric clients attended the paediatric dental clinic from January 2016 to December 2016 (n=1322).

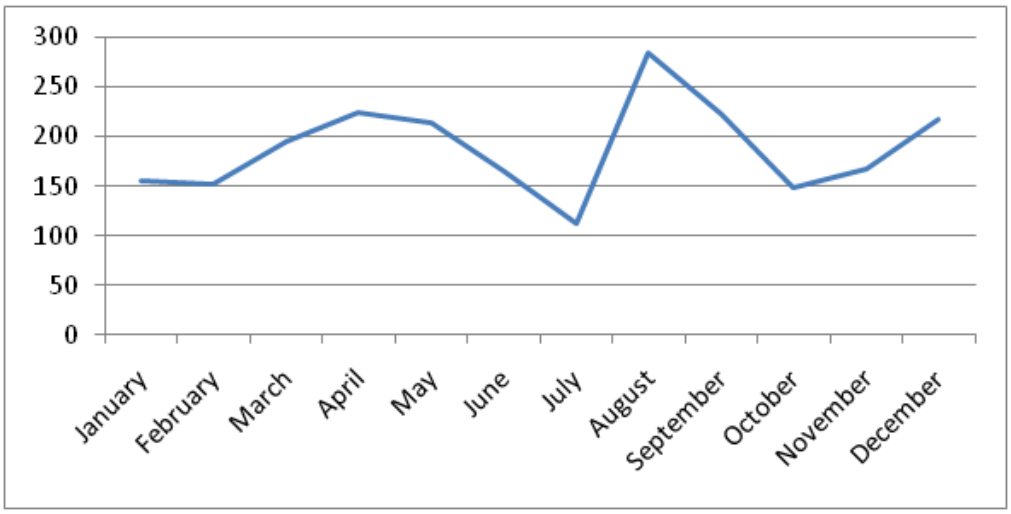
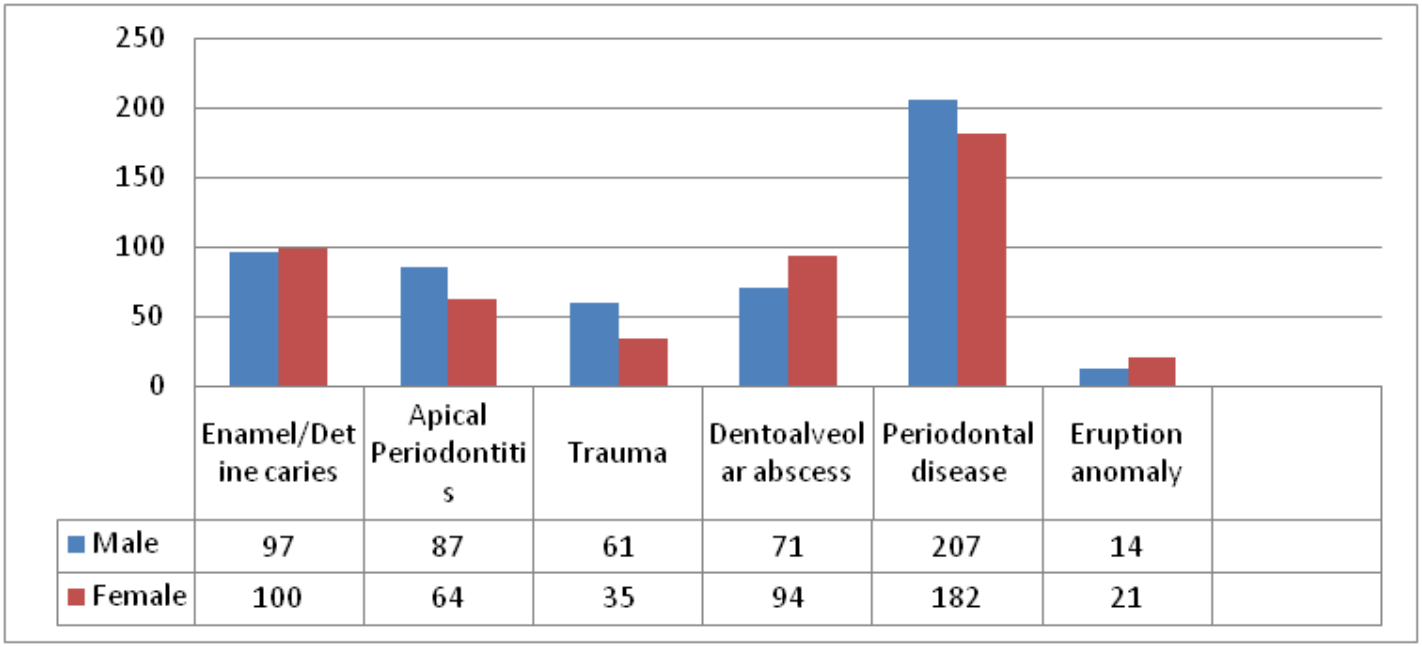


Figure 4. Distribution by age and sex of clients attending Paediatric Dental Clinic.

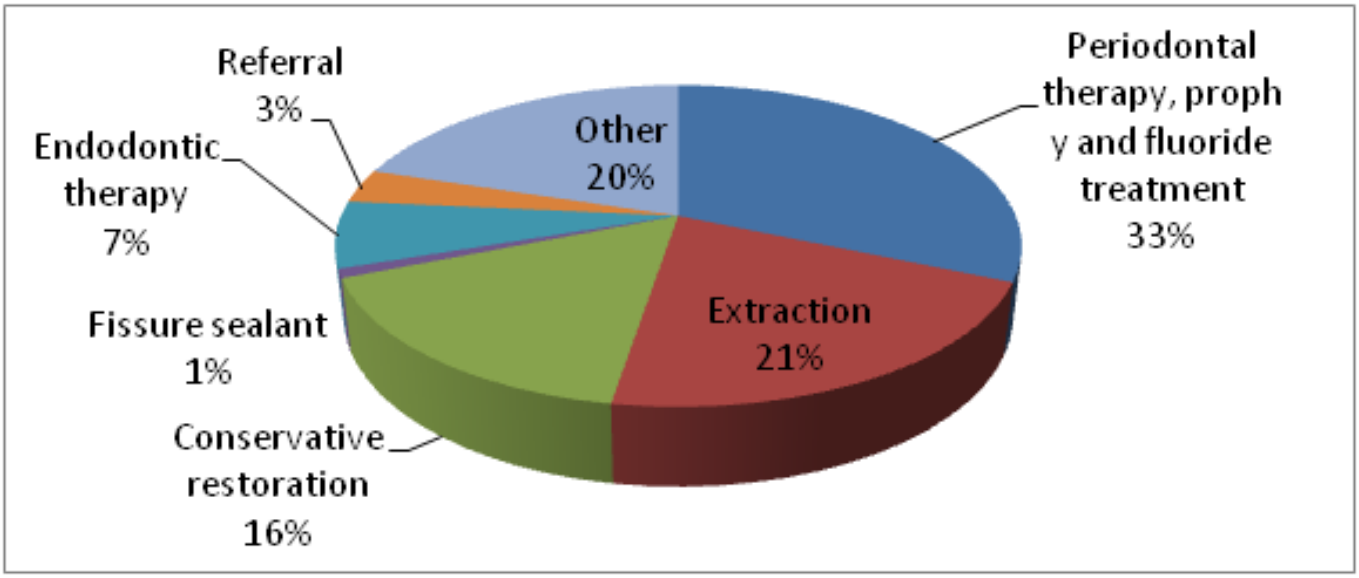


	Enamel/Detine caries	Apical Periodontitis	Trauma	Dentoalveolar abscess	Periodontal disease	Eruption anomaly	
Male	97	87	61	71	207	14	
Female	100	64	35	94	182	21	

in comparison to Saudi Arabia (8.6%)[5]. However, of the 103, half (51.4%) of them had previously attended clinic at our facility. Thus they could have been conditioned to return for routine visits.

Cariology and the pathophysiology of periodontitis arevery well described in the literature. However, in children, dietary intake of sugars and carbonated soft drinks coupled with poor oral hygiene and lack of manual dexterity for brushing are important factors that promote a milieu conducive for cariogenesis and biofilm formation which initiates gum disease [9]. Like many other reports,[10] our study similarly finds dental caries and periodontal disease to be the commonest oral conditions in children in Ghana. Our study, however, reveals an overwhelming unmet need for periodontal treatment in children. Gum disease in its various forms had a high representation in

Figure 5. Distribution of treatments performed on clients attending paediatric dental clinic (n=1322).



our study. This is consistent with many other reports worldwide.[1,5,12]Dental caries had a fairly large representation of 15.1% for uncomplicated caries, but a combined representation of 39% when viewed to include complicated caries and dentoalveolar abscess. A 7.1% occurrence of varying degrees of dentoalveolar abscess as shown in Figure 1, is, however,a strong indicator of delays in accessing oral healthcare.

It is reported that the incidence of dental trauma is likely to increase in the future due to an increase in recreational and sports activities in school-aged children and these may exceed that of caries and periodontal diseases[13]. Dental trauma accounted for 6.7% of presentations in our study, and accounting for the highest number of teeth worked on (35.7%) in the upper arch of the permanent dentition. Compared to our finding of 6.74%, dental trauma was reported to account for 0.8% to 4.8% of all dental attendances and 13.0% to 51.0% of all dental emergency attendances in hospital dental clinics with falls being the most common cause.[13]The World Health Organization (WHO) also reports that 16-40% of children in the age range six to12 years experience some form of dental trauma. This, it attributes to unsafe playgrounds, unsafe schools, road accidents, or violence.[1]

The three peaks of attendance to the clinic as demonstrated in Figure 3 seem to correspond to traditional vacation pattern of schools in Ghana. Vacations are usually around April (corresponding to Easter holidays), August and December (corresponding to Christmas holidays). Oral health school-based intervention programs would, therefore, have to be planned with this pattern in mind.

Extractions, as demonstrated in Figure 5, seemed to be the preferred treatment option as compared to endodontic therapy. This may be accounted for by the unique challenges of endodontic therapy in children[13]as well as the cost (direct and indirect) involved.

CONCLUSION

There seems to be an unmet need for Oral healthcare among children in Ghana. Not only is there a high incidence of symptomatic visits, but a high occurrence of late visits demonstrated by the large proportion of presentation of dentoalveolar abscess. These observations, therefore, call for distinctive policy building, advocacy, and system support to improve the oral health outcomes of children. The average direct cost of treatment per visit was also found to be GHS 75.50 (US$ 16.40).

REFERENCES

Al-Ghutaimel H, Riba H, Al-Kahtani S, Al-Duhaimi S. Common periodontal diseases of children and adolescents. Int J Dent [Internet]. 2014 [cited 2017 Apr 6];2014:850674. Available from: http://www.ncbi.nlm.nih.gov/pubmed/25053946

American Academy of Pediatric Dentistry. Policy on School Absences for Dental Appointments. Ref Man [Internet]. 2010 [cited 2016 Nov 12];(6):38–9. Available from: http://www.aapd.org/media/policies_guidelines/p_schoolabsences.pdf

Bramantoro T, Prabandari YS, Ismail D, Tedjosasongko

U. The Patterns of Dental Caries Influence on the Children's Quality of Life Aged 3-5 Years Based on the Socioeconomic Characteristics. Sci J Public Heal [Internet]. 2015 [cited 2016 Nov 12]; 3(6):830. Available from: http://www.sciencepublishinggroup.com/journal/paperinfo?journalid=251&doi=10.11648/j.sjph.20150306.16

Carrotte P. Endodontic treatment for children. Br Dent J [Internet]. 2005 Jan 8 [cited 2017 Feb 23];198(1):9–15. Available from: http://www.nature.com/doifinder/10.1038/sj.bdj.4811946

Lee JY, Bouwens TJ, Savage MF, Vann WF. Examining the cost-effectiveness of early dental visits. Pediatr Dent [Internet]. [cited 2016 Nov 12];28(2):102-5-8. Available from: http://www.ncbi.nlm.nih.gov/pubmed/16708783

Macnab AJ, Macnab AJ, Macnab, J. A. Children's Oral Health: The Opportunity for Improvement Using the WHO Health Promoting School Model. Adv Public Heal [Internet]. 2015 [cited 2016 Nov 12];2015:1–6. Available from: http://www.hindawi.com/journals/aph/2015/651836/

Odegua Eigbobo J, Onyeaso CO, Okolo NI. Pattern of Presentation of Oral Health Conditions among Children at the University of Port Harcourt Teaching Hospital (UPTH), Port Harcourt, Nigeria. 2011 [cited 2016 Nov 12];11(1):105–9. Available from: http://www.redalyc.org/articulo.oa?id=63719237016

Oral Health in America, A case report of the surgeon general.

Petersen PE. Improvement of oral health in Africa in the 21st century – the role of the WHO Global Oral Health Programme. Geneva; 2004.

Ravindranath S, Survia Andiesta N, Hasan ZA, Pau JAC and A. Patterns of Dental Trauma in Children Presenting in Hospital Based Dental Clinics: A Review. Dent Heal Curr Res [Internet]. 2016 [cited 2016 Nov 12];2(1). Available from: http://www.scitechnol.com/peer-review/patterns-of-dental-trauma-in-children-presenting-in-hospital-based-dental-clinics-a-review-9DtW.php?article_id=4491

Varas F, Zillmann G, Muñoz A, Hassi J, Yévenes I, Echeverría S, et al. Periodontal status and treatment needs of children from 6 to 8 years old in the Santiago Metropolitan Region of Chile. Rev OdontoCiência [Internet]. 2011 [cited 2017 Feb 23];26(1):10–5. Available from: http://www.scielo.br/scielo.php?script=sci_arttext&pid=S1980-65232011000100005&lng=en&nrm=iso&tlng=en

WHO | Oral health services. WHO. 2016;

WHO | Oral health. WHO. 2016;