

Prevalence and risk factors of missed appointment among paediatric patients after minor oral surgical procedures in a tertiary hospital in Southern Nigeria

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ABSTRACT

Background

Missed appointments are common in paediatric dentistry, yet not many studies have explored its prevalence and associated factors.

Aim

To determine the prevalence of missed appointments and the associated factors.

Methods

This prospective study design recruited all consecutive paediatric patients that presented for minor oral surgical procedures from 1st July 2020 to 30th June 2021. Data collected was the age of patients, gender, parents' educational level, distance from the clinic, type of minor oral surgical procedures and missed appointments. Descriptive and inferential statistics were performed. Chi-square test of association was used to determine the association between study participants' age, sex, parents' educational level, the distance from the clinic, and the prevalence of missed dental appointments. Binary logistic regression was used to determine the predictors. Data was analysed using the Statistical Package of Social Science (SPSS) version 26 (IBM, Chicago, IL, USA). A p-value of less than 0.05 was considered significant.

Result

A total of 182 paediatric dental patients, age ranged from 0.5 to 16 years and with a mean age of 8.55±3.88 participated. Most (60.4%) of the patients were females and 46.2% of them were of school age. Most of the parents had a

tertiary level of education and lived within 7 to 12 kilometers from the clinic. The prevalence of missed appointments was 54.9% and the most performed minor oral surgical procedure was primary tooth extraction. The relationship between age group, minor surgical procedures with missed appointments was statistically significant ($P < 0.05$). Binary logistic regression analysis revealed that the type of surgical procedure was the only independent predictor of missed appointments ($p < 0.05$).

Conclusion

The prevalence of missed appointments in this study is remarkably high. Although the age of the patients and the type of procedure was associated with the prevalence of missed appointment, it was only the type of surgical procedure that was a significant risk factor for missed appointment.

Keywords

Missed dental appointments, Minor oral surgical procedures, Pediatric dentistry, risk factor.

INTRODUCTION

Contemporary management recommends that a child's first dental visit should take place within six months of the eruption of the first primary tooth but no later than 12 months of age.¹ This first appointment will include a thorough medical and dental history; an oral examination to assess the infant's risk of developing oral and dental disease as well as the provision of anticipatory guidance for the parents.² Whenever a child dental patient undergoes any form of treatment, a follow-up appointment is expected to be scheduled by the dentist and kept by the patient. This will allow the dentist to assess the treatment outcome, which will help in small measure, in the maintenance of good oral health. When such appointments are not honoured by the child and parent, a 'missed appointment' or a 'no show' is said to have occurred.

Missed appointments (MAs) are defined as appointments for which the patient did not show up, or did not call in to cancel or reschedule.³ Improving treatment outcomes and dental clinic output, through well-structured practices, should be the goal of every dentist. This, however, is affected by the patient's non-attendance which is a huge problem and of concern to the healthcare providers.⁴ In paediatric dental practice, children are considerably dependent on their parents; not only during their first dental

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Table 1: Sociodemographic characteristics of the patients [n=182]

Variable	Category	Frequency(n)	Percentage (%)
Age group (years)	0 - < 2 (Infants)	9	4.9
	2 - < 6 (Preschool)	54	29.7
	6 - < 12 (School-age)	84	46.2
	12 - 16 (Adolescent)	35	19.2
Gender	Male	72	39.6
	Female	110	60.4

visit and treatment visits but also in attending their follow-up appointment after any dental treatments including minor oral surgeries. Minor oral surgery refers to surgical procedures in and around the oral cavity that can be performed safely and comfortably under local anaesthesia and or sedation in a dental office.⁵ These procedures require a short follow-up appointment period of about a few weeks.

Missed-appointment rates in the literature vary and could be as high as 80%.⁶ The burden of missed appointments is a global phenomenon,⁷ and has caused prolonged treatment, poor outcomes, and high treatment costs and can psychologically affect parents/guardians and the treatment providers. More so missed appointments following minor surgical procedures can lead to wound dehiscence, surgical site infections and poor wound healing since most patients failed to come for reinforcement of postoperative instructions.⁸ In teaching hospitals or training facilities, opportunities are lost to provide care to the patient and to teach the students.⁹ This also has a further impact on the clinical experiences and operating hours of the students.¹⁰ Missed appointments have been reported to be influenced by several factors.^{9,11,12} Socio-demographic factors associated with the MAs include sex and age.⁹ More so, type of treatment, treatment delays and child behaviour management problems have also been known to be associated with MAs.^{11,12} Detman and Gorzka,¹³ reported that missed appointments are likely to be affected by three kinds of barriers: Personal, structural, and financial. Personal barriers include factors like attitude toward oral health care, education level, and various demographic characteristics. Structural barriers include transportation, clinic hours, and the way providers

organise their services which can also impede access to appointments. Various financial barriers can also affect a patient's ability to keep appointments.

Though missed appointments have been well studied in other fields of medical specialties in Nigeria^{14,15,16,17,18} it appears no studies have been done in Paediatric dentistry. Thus, the present study was conducted with the objective to determine the prevalence of MAs over a period of 1 year at the Paediatric Dental Clinic of the University of Benin Teaching Hospital and also assess the factors associated with missed appointments. It is hoped that the findings in this study will aid the paediatric dentist and oral and maxillofacial surgeon to identify and educate parents/accompanying adults on the need to honour appointments for possible reinforcement of post-operative instructions.

MATERIAL AND METHODS

This prospective cross-sectional study was conducted at the Department of Pediatric Dentistry, University of Benin Teaching Hospital, Benin City, Nigeria. All consecutive patients that presented for treatment with minor surgical procedures were recruited from 1st July 2020 to 30th June 2021. Excluded from the study were patients undergoing non-surgical procedures, and those not willing to participate in the study. After the informed consent and the minor surgical procedures were performed, the parents/guardians were instructed to bring their children/wards to the hospital for check-ups which is the routine policy of our hospital. This instruction was emphasised at the post-operative instructions session. Data collected was the age of patients, gender, parents' educational level, and distance from clinic. Other data collected was the type of minor oral surgical

Table 2: Clinical characteristics of the patients

Variable	Category	Frequency(n)	Percentage (%)
Parents' educational level	Primary	8	4.4
	Secondary	39	21.4
	Tertiary	135	74.2
Patient address and proximity to the clinic	less than 7km to the clinic	59	32.4
	Between 7km to 12km	112	61.5
	Over 12km from the clinic	11	6.0
Minor surgical procedure done	Primary tooth extraction	132	72.5
	Permanent tooth extraction	43	23.6
	Soft tissue suturing	3	1.6
	Surgical excision	2	1.1
	Modified micromarsupialization	1	0.5
	Frenectomy	1	0.5
Missed appointment	Yes	100	54.9
	No	82	45.1

Table 3: Association between missed appointment and the studied variables

Variable	Missed appointment		P value
	Yes(100) n (%)	No(82) n (%)	
Age group			
Infants	5(5)	4(4.9)	0.006*
Preschool	33(33)	21(25.6)	
School-age	52(52)	32(39.0)	
Adolescent	10(10)	25(30.5)	
Gender			
Male	45(45)	27(32.9)	0.097
Female	55(55)	55(67.1)	
Parents' educational level			
Primary	5(12.8)	3(3.7)	0.120
Secondary	16(41.0)	23(28.4)	
Tertiary	80(46.2)	55(68.9)	
Patient address and proximity to the clinic			
less than 7km to the clinic	29(29.0)	30(36.6)	0.541
Between 7km to 12km	65(56.0)	47(57.3)	
Over 12km from the clinic	6(6.0)	5(6.1)	
Minor surgical procedure done			
Primary tooth extraction	87(87)	45(54.9)	0.000*
Permanent tooth extraction	13(13)	30(36.6)	
Soft tissue suturing	0(0.0)	3(3.7)	
Surgical excision	0(0.0)	2(2.4)	
Modified micromarsupialization	0(0.0)	1(1.2)	
Frenectomy	0(0.0)	1(1.2)	

* = significant at $p < 0.05$

procedure and missed appointment. Descriptive and inferential statistics were performed. Categorical data were summarised in percentages while continuous data was presented in range and means. Chisquare test of association was to determine association between study participants' age, sex, parents' educational level, distance from clinic, and prevalence of missed dental appointments. Binary logistic regression was used to determine the predictors. Data were analysed using the Statistical Package of Social Science (SPSS) version 26 (IBM, Chicago, IL, USA). P-value of less than 0.05 was considered significant.

RESULTS

A total of 182 paediatric dental patients were seen in the period under review. The age range of the patients was from 0.5 to 16 years and with a mean age of 8.55±3.88. Table 1 shows the demographic characteristics of the study participants. Most (60.4%) of the patients were females and 46.2% of them were of school-age. Table 2 shows the clinical characteristics of the patients. The majority (74.2%) of the parents had a tertiary level of education while most (61.5%) of them reside at a distance of between 7km and 12km from the hospital. The prevalence of missed appointments was 54.9% and the most (72.5%) performed minor oral surgical procedure was primary tooth extraction. Table 3 shows the association between missed appointments and the studied variables. The age of the patients and the type of minor surgical procedures were significantly associated

with the prevalence of missed appointments ($P < 0.05$). Table 4 shows the binary logistic regression analysis of associated factors with MAs. The type of minor surgical procedures was the only variable that independently predicted the odd of missed appointment. [OR=0.242; 95%CI = 0.08-0.70, $P=0.009$].

DISCUSSION

The prevalence and risk factors of oral minor surgical procedures among paediatric patients in a Nigerian tertiary hospital was prospectively studied. Missed appointment is a major public health burden for both the patients and the health providers as it affect the optimum treatment outcome and ultimately the patient's quality of life.

The prevalence of minor oral surgical procedures in this study was 54.9% and this was comparable to that reported by Bhatia *et al.*,³ which reported a prevalence of 52.0%, but higher than 32.9% and 28.0% reported by Machado *et al.*,¹⁹ and Prabhu *et al.*⁹ respectively. The probable reason for the variation in the findings may be due to the fact that the present study considered only paediatric minor surgical procedures while the previous studies looked at all paediatric dental procedures. In this study, the plan at follow-up appointment was to review the operative sites, reinforce the post-operative instructions in order to ensure proper operative site healing and also assess other risk where necessary. In the previous studies, despite having similar plan like in the present study

Table 4: Binary logistic regression analysis of associated factors with missed appointments

Variables	odd ratio	95% of odd ratio		P value
		Lower	Upper	
Age group				
Adolescent	-	-	-	.768
Infant	1.976	.266	14.566	.508
Preschool	1.003	.266	3.747	.998
School age	1.344	.407	4.402	.631
Minor surgical procedure				
Primary tooth extraction	-	-	-	-
Permanent tooth extraction	-	-	-	-
Suture related procedures	.242	.084	.697	.009*

also needed to continue with one form of treatment or the other at the follow up appointment.

There was an association between the age of the patients and the prevalence of missed appointments in the present study. However it fails to independently predict the risk of missed appointments when subjected to logistic regression analysis. This finding in our study agrees with that by Bhatia *et al.*,³ but disagrees with Prabhu *et al.*,⁹ who reported a higher MA among the preschoolers. Meanwhile, AlSadhan⁴ and Bos *et al.*,²³ found no difference among age groups.

The type of oral minor surgical procedure was the only factor that independently predicted MA among the covariates subjected to logistic regression in the present study. Some Nigerian authors have reported tooth extraction as the most common treatment procedure carried out in the paediatric dental clinic.^{24,25} The present study revealed that primary tooth extraction is the most performed paediatric minor surgical procedure and also accounts for the highest proportion of MA. The rationale behind the high proportion of MA in our study may be connected to the uneventful healing of the extraction sites following the extractions of primary teeth which are less invasive to that of the permanent teeth. It could also be due to the adherence to our post-operative instructions which would have helped to accelerate the healing of the extraction site. The paediatric minor surgical procedures in our study with absolutely no MAs included procedures that were suture related and it accounted as a predictive factor responsible for not missing an appointment. The reason for this finding could be due to the presence of a foreign substance, like the suture material in the oral cavity, which must have propelled the patient to honour the appointment.

In this study, the limitation was that it only focused on patients that had only minor oral surgical procedures and there is need for further study to assess with all paediatric dental treatment procedures. Furthermore, the findings of this study should be interpreted with caution since it is a single centre study as there may be need for multicentre study in future.

CONCLUSION

The prevalence of missed appointments in this study is remarkably high. Although the age of the patients and the type of procedure was associated with prevalence of missed

appointments, it was only the type of procedure that was a significant risk factor of missed appointment.

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