

Prevalence of periodontal diseases among patients who attended the University of Rwanda College of Medicine and Health Sciences Polyclinic-Dental Clinic in the year 2017

Marie Aimee Dusenge, Vestine Abimana, Emmanuel Nzabonimana, Anne Marie Uwitonze

ABSTRACT

Aims: Periodontal diseases are highly prevalent and can affect up to 90% of the worldwide population. Gingivitis is reported to be the most abundant in the adult population all over the world. However, periodontitis also affects approximately 10 to 15% in adult populations of the world. **Methods:** This study was conducted at University of Rwanda-College of Medicine and Health Sciences Polyclinic-Dental Clinic. A retrospective cross-sectional study was carried out. Patients' records of new cases who attended the University of Rwanda-College of Medicine and Health Sciences Polyclinic-Dental Clinic in 2017 were recruited in this study; data were coded and entered into IBM SPSS Version 21. Chi square test was used to check for associations. The significance level was put at a P-value $\leq 0.05\%$ with 95% Confidence Interval. **Results:** The prevalence of periodontal diseases among the participants who attended the University of Rwanda-College of Medicine and Health Sciences Polyclinic-Dental Clinic was found to be 41.6%. There was an increase in periodontal disease with age along with significant association between periodontal diseases and gender. However, there was no significant association between

periodontal diseases with geographical locations. **Conclusion:** The prevalence of periodontal diseases among the patients who attended the University of Rwanda-College of Medicine and Health Sciences Polyclinic was high. There was a correlation in the prevalence of periodontal diseases in East Africa and worldwide. We recommend that the government, through dental associations, should organize and conduct community outreaches to different areas that are not accessing dental services and provide oral health education and other preventive care.

Keywords: Dental plaque, Gingivitis, Periodontitis, Prevalence

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Marie Aimee Dusenge¹, Vestine Abimana¹, Emmanuel Nzabonimana¹, Anne Marie Uwitonze¹

Affiliations: ¹Department of Preventive and Community Dentistry, School of Dentistry, College of Medicine and Health Sciences, University of Rwanda.

Corresponding Author: Marie Aimee Dusenge, University Rwanda, College of Medicine and Health Sciences, School of Dentistry (Kigali-Rwanda), POB: 3286 Kigali-Rwanda; Email: dusemarie1@gmail.com

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INTRODUCTION

Among the most prevalent non-communicable diseases, periodontal diseases are included similarly to cardiovascular diseases and diabetes [1]. Severe periodontitis, which may result in tooth loss, is found in 5–20% of most adult populations worldwide [2].

Bleeding of the gingival tissues is reported to be prevalent at the highest level in all regions of the world in the adult population. However, advanced diseases with deep periodontal pockets approximately equal to 6mm is present between 10 to 15% of the worldwide adult population [3].

In the USA, over 64.7 million adult population represented by a sample of 47%, were reported of having periodontitis. Their distribution was 8.7%, 30.0%, and 8.5% with mild, moderate, and severe periodontitis respectively [4]. Periodontal disease is a major problem that oral health care providers need to deal with in their clinical practice [5].

Evidences which are available show that most important risk factors for periodontal diseases are related to tobacco use, poor oral hygiene, consumption of excessive alcohol, stress and diabetes mellitus [3].

Rwanda, an East African country, is making a great development in different sectors including health, education, infrastructures, research and others, after 1994 Genocide against Tutsis. The aim of the present study was to determine the prevalence of periodontal diseases in a population of patients who attended the University of Rwanda-College of Medicine and Health Sciences polyclinic, Dental Consultancy Center in 2017.

MATERIALS AND METHODS

This was a descriptive retrospective cross-sectional study of dental records for the year 2017 in archives of the University of Rwanda-College of Medicine and Health Sciences Polyclinic Dental Clinic, Kigali city, Nyarugenge district, Nyarugenge sector. All new case reports of patients treated in 2017 were used. The total number of new patients reported in the clinic was 1077. Patient demographic data and periodontal diagnoses were extracted from the patient records using a standardized data collection form and were anonymized to protect patient confidentiality. Collected data was then coded and analyzed using IBM SPSS Version 21 for frequencies, proportions and associations between demographic characteristics and periodontal diagnosis. Chi square test was used to check for associations. The significance level was put at a p-value $\leq 0.05\%$ with 95% confidence interval.

Ethical approval was provided by the institutional review board of the University of Rwanda, and permission to review the records was obtained from the University of Rwanda-College of Medicine and Health Sciences polyclinic.

RESULTS

Of the 1077 records of new patients treated in 2017, 569 (52.8%) were males and 507(47.2%) were females. Among which 448 (41.6%) were diagnosed of periodontal

diseases. As for location, 772 (78.6%) were resident in Kigali city and 305 (21.4%) were from outside Kigali city. Periodontal diseases were significantly associated with gender ($p=0.000$) and age ($p=0.000$). Location was found not to be significantly associated with periodontal diseases.

Of patients' records with a diagnosis of periodontal disease, 277 (62.0%) were males and 171(38.8%) were females. In terms of age, the age groups 30–39 years had the highest prevalence of periodontal disease 189(42.1%), followed by the 20–29 years' age group 116 (25.9%). (Table 1).

DISCUSSION

The prevalence of periodontal diseases among patients in the University of Rwanda-College of Medicine and Health Sciences Polyclinic was found to be 41.6%. These findings are higher than those of several studies done in other East African countries, where prevalence ranged from 27.6% to 37% [6]. The reason behind this difference might be the limited number of dental personnel and access to dental facilities compounded by a lack of awareness of the Rwandan population on strategies of preventing oral diseases.

The prevalence of periodontal disease was found to increase with age in our studied population and was most prevalent in the age group of 30–39 year old (42.3%), in agreement with results obtained from the studies conducted in Sweden and the USA [1]. This might be due to the lifestyle of this group of individuals especially smoking, uses of tobacco products and alcohol consumption. There was no significant association between periodontal diseases and geographical location. i.e. rural against urban population. These findings are

Table 1: Association of periodontal diseases with age, gender and location

Demographic Features		Diagnosis (periodontal diseases)	P- value
Gender	Male	277 (62.0%)	0.000
	Female	171(38.8%)	
Age group	0-9	0(0.0%)	0.000
	10-19	15(3.3%)	
	20-29	116(25.9%)	
	30-39	189(42.3%)	
	40-49	84(18.7%)	
	50-59	29(6.4%)	
	60-69	15(3.3%)	
Location	Kigali	370(82.5%)	0.451
	Out-side Kigali	118(27.5%)	

similar to those obtained in Morogoro district, Tanzania, where it was found that there were no statistically significant differences in periodontal conditions between adults in urban and rural settings with the exception of 45 years old and above age group [7]. However, the findings of the present study differ from those reported by Benoît et al in Burkinafaso where rural participants had more severe periodontal scores than urban participants [8].

The gender distribution of the study shows that males are more likely to have periodontal diseases than females; our results are similar to the reported prevalence of periodontal diseases in Portugal [9]. In a separate study done in Gambia, Jordan et al. demonstrated that males were significantly more affected by periodontitis than women [10].

In Thailand, Torrungruang et al reported that severe periodontitis is highly prevalent in males and increases with age [11].

Another cause may be also due to the high exposure on risk factors of periodontal diseases which is high in males than in females including smoking, use of tobacco product, severe alcohol consumption and poor oral hygiene.

One of the limitations faced in the study was related to poor records and variability of reporting periodontal diseases in addition to missing patient data. Missing information on age, gender and diagnosis have affected our patients' selection. Only patients with all the required information were recruited in the study for further data analysis. In addition, the study was done in an urban based clinic; this might give the impression that people in urban area (Kigali) had higher prevalence of periodontal diseases even when they have better access to dental services compared to those of the rural area.

CONCLUSION

A high prevalence of periodontal diseases among patients who attended the University of Rwanda-College of Medicine and Health Sciences Polyclinic Dental Clinic in 2017(41.6%) especially in males. Efforts should be made to raise their awareness on preventive measures of periodontal diseases.

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Author Contributions

Marie Aimee Dusenge – Conception of the work, Design of the work, Acquisition of data, Analysis of data, Interpretation of data, Drafting the work, Revising the work critically for important intellectual content, Final approval of the version to be published, Agree to be accountable for all aspects of the work in ensuring that questions related to the accuracy or integrity of any part of the work are appropriately investigated and resolved

Vestine Abimana – Acquisition of data, Revising the work critically for important intellectual content, Final approval of the version to be published, Agree to be accountable for all aspects of the work in ensuring that questions related to the accuracy or integrity of any part of the work are appropriately investigated and resolved

Emmanuel Nzabonimana – Acquisition of data, Revising the work critically for important intellectual content, Final approval of the version to be published, Agree to be accountable for all aspects of the work in ensuring that questions related to the accuracy or integrity of any part of the work are appropriately investigated and resolved

Anne Marie Uwitonze – Analysis of data, Interpretation of data, Drafting the work, Final approval of the version to be published, Agree to be accountable for all aspects of the work in ensuring that questions related to the accuracy or integrity of any part of the work are appropriately investigated and resolved

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Authors declare no conflict of interest.

Data Availability

All relevant data are within the paper and its Supporting Information files.

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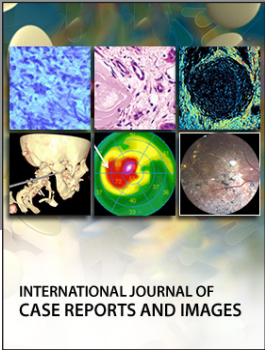
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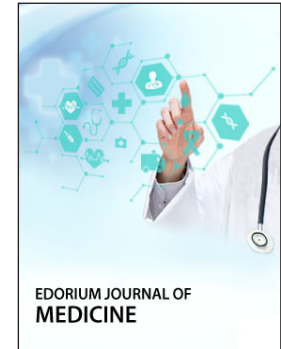
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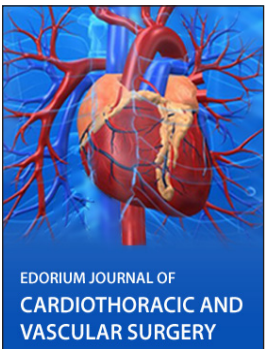
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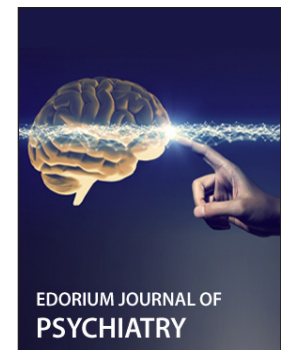
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