

# Relationship between periodontal disease and recreational drug use

## Abstract

Periodontal disease is a prevalent chronic inflammatory condition associated with established risk factors such as smoking and systemic diseases, including diabetes. However, the relationship between recreational drug use and periodontal disease remains insufficiently explored despite the rising prevalence of substance use. This retrospective study aimed to evaluate the association between periodontal disease severity and recreational drug use among patients seeking periodontal treatment at the University of Pittsburgh School of Dental Medicine. Electronic health records of 6,928 patients were analyzed, including self-reported drug use and periodontal evaluation data. Periodontal disease severity was inferred from the frequency of periodontal evaluations and treatment history. Ordinal logistic regression analysis was performed, adjusting for age, gender, and smoking status, while diabetes was excluded due to lack of statistical significance. The results showed that 86.5% of subjects had no periodontal evaluations, while smaller proportions had one or more evaluations. Marijuana use demonstrated a trend toward statistical significance ( $p = 0.071$ ,  $OR = 0.855$ , 95% CI [0.721, 1.013]) but did not reach a definitive association with periodontal disease severity. Within the limitations of this study, cannabis use was not significantly associated with periodontitis, although a suggestive trend warrants further investigation.

**Keywords:** periodontal disease, cannabis, recreational drug use, marijuana, periodontitis, risk factors, electronic health records, retrospective study, smoking, oral health

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## Introduction

Periodontal disease is a chronic inflammatory disease that affects most adult populations with associated risk factors including smoking and systemic disease like diabetes. The effect of recreational drugs and periodontal disease is less well researched. It is important to study the relation between periodontal disease and recreational drug due to increasing use and few studies available.<sup>1,2</sup>

The purpose of this retrospective study was to evaluate association of periodontal disease among patients seeking periodontal treatment and use of recreational drugs at the University of Pittsburgh, School of Dental Medicine.

## Materials and methods

The University of Pittsburgh Dental School's electronic health records were queried and records extracted. Patients' standard health questionnaires including drug use were reviewed.<sup>3,4</sup> Assessment for periodontal disease status was based on presence of a full periodontal evaluation records and treatment history. Greater number of periodontal evaluations indicated possible heightened severity, refractory, or recurrence of disease.

## Results

The dataset encompasses 6928 subjects. 5998 (86.5%) had no period evaluations; 721 (10.4%) had 1; 137 (1.97%) had 2; and 72 (1.04%) had 3+. Ordinal logistic regression was used to investigate relationship between predictor variables and disease severity. Outcomes of the model were adjusted for independent variables such as age, gender, smoking status. Diabetes was excluded as it had no significant impact in overall analysis. The results indicate that the p-value (0.071,  $OR=0.855$ , 95% CI [0.721, 1.013]) for subjects

reporting marijuana consumption approaches a level of significance (Table 1).

**Table 1** Association between independent variables and periodontal disease severity: an ordinal logistic regression analysis

Independent variables	P-value <sup>①</sup>	Odds ratio (95% CI)
<b>Age</b>	Compared with Age group 0-25 y	
26-50y	<0.0001	9.17(4.044, 20.793)
51-75y	<0.0001	25.94(11.506,58.478)
76-100y	<0.0001	27.83(12.035,64.377)
101-125y	0.0017	82.21(5.211,1297.026)
<b>Gender</b>	Compared with Female group	
Unknown/Transgender	<0.0001	0.00000023 (0.00000023, 0.00000023)
Male	<0.0001	0.697 (0.603, 0.806)
<b>Smoking: Cigarettes</b>	Compared with group who are not smoking Cigarettes	
Unanswered	0.026	0.413(0.189, 0.900)
Yes	0.48**	----
<b>Smoking: Other</b>	Compared with group who are not smoking Other	
Unanswered	0.005	0.503 (0.311, 0.814)
Yes	0.032	0.722 (0.535, 0.973)
<b>Smoking: Marijuana</b>	Compared with group who are not smoking Marijuana	
Unanswered	0.557**	----
Yes	0.071*	0.855(0.721, 1.013)

**Note:** ① Ordinal Logistical Regression test; \*\* p-value > 0.1 not significant; \* p-value close to the significance level = 0.05.

## Conclusion

The results within this study population indicate no association between cannabis use and periodontitis. There was however a trend towards statistical significance.

## Acknowledgments

None.

## Conflicts of interest

The authors declare that there are no conflicts of interest.

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